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MEDICAL EDUCATION, 1909-1924 *

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Fifteen years ago, under the kindly and patient chaperonage of Dr. Colwell, I began my pilgrimage to medical schools at New Orleans, where Dr. Colwell and I visited the medical department of Tulane University. For three or four years following I devoted myself exclusively to the study and observation of medical education in this country and in the main countries of western Europe. Then for a period of ten years my contact with medical schools was simply occasional, while Dr. Colwell, in behalf of the Council on Medical Education of the American Medical Association, kept up not only his field contacts but also the unremittent hammering to which our American progress in medical education has been so largely due.

About two and one-half years ago, I undertook to review once more the entire field, though unfortunately I have not been able to visit as many schools either in this country or abroad as I touched in my original journey, partly because I desired to include in my foreign studies some of the smaller countries of western Europe—Switzerland, Holland, Belgium, Denmark and Sweden—which I had not previously touched. On the invitation of the chairman and secretary of the Council, I am going to make a brief comparison of the conditions as I found them in 1909-1912, with conditions as they exist in 1924.

CONDITIONS IN EUROPE

No fundamental changes in respect either to equipment, method of instruction or aim of instruction have taken place on the continent of Europe during this period. The war has, indeed, made it extremely difficult for the smaller nations, which were not themselves involved in the war, to maintain their hospitals and medical schools at the prewar level of activity and efficiency; but, though painful economies are being practiced, we are perhaps justified in saying that, in a long view, no permanent damage will have been done.

In Germany and in Austria—the countries which, prior to the war, easily led the world in the field of medical education and research—herculean efforts are being made to keep at work, despite economic conditions that have discouraged and to some extent disintegrated the university personnel. Relief from the outside and self-help from the inside have accomplished something. Men with ideas continue to work with their heads, if not with their hands, and with an occasional frog, if not with the abundance of animals which they were previously in position to utilize. Distress, failure and revolution have provoked severe criticism. With unprecedented freedom of expression, politics and education have been subjected to searching analysis and criticism. The democratic leaders, influenced largely by American example, have in particular sought to bring the universities in closer touch with the masses. Medical education has not escaped. But the literature in question, outspoken and abundant as it is, does not directly attack what seemed to be the real weakness in German medical education prior to the war. If Germany finds itself once more in a fairly comfortable economic situation, I have little doubt that the universities will quickly recover their vigor. They will become once more productive seats of scientific investigation and they will afford splendid opportunities for study and training to the abler student; but I see as yet no indication of the thoroughgoing change in teaching methods which would give a more practical character to medical instruction.

France has been quite stationary, except so far as the acquisition of the University of Strasbourg gives the country for the first time a modern medical school plant. The medical faculty at Strasbourg is composed partly of men trained in Germany, partly of men trained in France; and a group containing representatives of both views has recently visited England and the United States. The dean of the faculty is a vigorous personality, well aware of the defects of the traditional French type of training, swamped, as it is, by premature and excessive emphasis on the clinic. This combination of circumstances makes Strasbourg a natural experiment station which might endeavor to combine the practical features of French clinical training with the laboratory features and investigative activities characteristic of the German university organization. Whether the Strasbourg faculty, however, will be a real center for educational experimentation in France, or whether it will gradually fall into the traditional groove, remains to be seen.

In Great Britain, physiology (including pharmacology and biochemistry) still maintains its high place, whether viewed from the standpoint of teaching or from that of research. The other medical sciences, long inferior in vigor, now, however, show signs of vitality. A modern institution of anatomy, likely to serve as a stimulating model, has been created at University College, London, under the direction of Prof. Elliott Smith, and plans are being discussed for the development of a broadly conceived school of pathology at Cambridge. Medical sciences other than physiology will thus come to be cultivated in a scientific, rather than a merely instrumental or medical spirit.

* Read before the Annual Congress on Medical Education, Medical Licensure, Public Health and Hospitals, Chicago, March 3, 1924.

Two other innovations must be recorded, both calculated in the long run to modify the excessively practical character of medical education in Great Britain. The English government is supporting at several of the London schools clinical units, the heads of which at University College, St. Bartholomew's and St. Thomas' are recognized as professors of medicine and surgery in the University of London. For the first time, professional, full-time teachers of medicine and surgery have thus been established in certain of the London hospital schools. A similar departure is about to be inaugurated at Edinburgh. The academic character of these men is strongly emphasized, for they are expected to be not only teachers, but also productive medical scientists. To be sure, their budgets are small and their staffs altogether too limited. If, however, increasing funds can be found, it may be that out of this simple beginning some such development on the side of clinical teaching will take place in Great Britain as has taken place in the United States.

The second hopeful change runs into the first. The English government has created a Medical Research Council, to which it makes an appropriation of £125,000 a year. The Medical Research Council is fine-combing Great Britain for the purpose of discovering young men of talent to whom fellowships may be awarded, in order that they may spend one, two or three years in medical investigation and research. The council has also created at Hampstead a small but active research institute. Once more, for the first time in Great Britain, the needs of medical education and research have been frankly recognized, and the government has made provision for the development of young men, who, as they become teachers in medical schools will undoubtedly modify the prevailing too practical and short-sighted point of view.

To recapitulate: Except for the damage done by the war, western Europe continues to work along the same lines that existed prior to the war. Equipment is good, facilities abundant, and conditions uniform within each of the countries. There is no fundamental or thoroughgoing distinction to be made between the various institutions of any given country. The same standards of admission prevail, the student body is of the same high quality, and the faculties are relatively complete. In England alone, while general conditions remain what they were, have two interesting developments taken place, namely, the establishment of the full-time medical and surgical units, and the creation of the Medical Research Council for the purpose of subsidizing research.

CONDITIONS IN AMERICA

During the same period, America has accomplished what at first sight looks like a transformation. Relatively viewed, progress in this country has been enormously greater than anywhere else. It affects every item that goes to make up a medical school. There were a hundred and fifty-odd schools, so called, in this country fifteen years ago. That number has been practically cut in half. The weak schools in all sections of the country, particularly in the South and West, where they were most abundant, have been almost wholly eliminated. Some kind of order has been introduced in the matter of matriculation requirements, though the order is in many respects more apparent than real. Everywhere equipment and facilities have been improved. The laboratory subjects are almost universally taught by full-time and especially trained teachers, though the teachers are in most schools still hampered by inadequacy of support, i. e., inadequacy of staff and equipment. On the clinical side, the situation is less satisfactory. The busy practicing physician is still in most schools the teacher of the clinical subjects; clinical instruction continues to be largely given in hospitals neither organized, equipped nor primarily meant for educational use. Nevertheless, the level has generally risen; in the better schools, organization and equipment have been distinctly improved; in the best, a genuinely professional clinical teaching staff of high quality, working amid fairly ideal conditions, has been assembled. Finally, surviving schools have almost without exception found larger sums for their conduct than could have been dreamed of a decade ago. A small group of schools enforce such standards of admission and have procured such equipment and resources that they deserve to be ranked among the strongest institutions to be found anywhere.

For this relatively quicker and greater progress there are several explanations. In the first place, we had farther to go; the differences between what was good and what was bad were in America ten years ago far more marked than was the case in any other country in the Western World. Progress—dramatic progress—was therefore possible in America on easier terms than anywhere else. Things were so excellent in Germany, Denmark and Switzerland that very great progress was not be expected and could not take the place within so brief a term. In England and France, on the other hand, though conditions in the different schools in either country were fairly uniform, they were unsatisfactory. Great general progress would have been possible, but it was not made. America, worse off than any of them, bestirred itself actively. This activity is attributable to two factors: leadership and funds. The claim of leadership belongs to the Council on Medical Education of the American Medical Association, to a few leading schools and to a few individuals. In response to the demand created by these leaders, funds have been procured by universities, through taxation and from philanthropic individuals and organizations. The credit, however, belongs not to the money, but to the leaders and primarily to the leaders in the profession and the schools. No other country has during this period produced anything like the systematic and energetic campaign carried on in recent years by those responsible for medical education in the United States.

I hope now that I have not only satisfied our national pride, but that I have been absolutely fair. Let me repeat that no nation in the world has within the last ten or twelve years made such progress in the organization, improvement and financing of medical education as the United States. On the other hand, let us not deceive ourselves. Let us objectively face the situation, not merely from the standpoint of relative progress during a decade or more, but on the basis of an inventory of what we actually possess today, and let us compare it point by point with what can be found elsewhere.

COMPARISONS

I have said that in different European countries the medical schools, while varying somewhat in wealth and facilities, are in each country comparatively uniform. There is no essential difference between the medical faculty at Giessen and the medical faculty at Munich, between the medical faculty at Lyons and the medical faculty at Paris, between the medical faculty at Lund

and the medical faculty at Stockholm, between the medical faculty at Edinburgh and the medical faculty at Glasgow, even though the German type of medical faculty differs from the French type, the French type from the Swedish type, and the Swedish type from the British type. Similarly, within any country the student bodies are also, generally speaking, of the same character. Finally, the facilities, though varying somewhat, do not differ essentially. With all our progress this is still far, very far, from being the case in the United States today. Between the best and the worst, yes, between the best in Class A and the poorest in Class A, the differences are hardly less pronounced than they were fifteen years ago. The best have improved, the poorest have improved, but there is almost as great a stretch between the best and the poorest as there was between the best and the poorest fifteen years ago. Let us consider the factors involved point by point.

On the face of the papers, a four-year high school education followed by two years of college work is in the United States required for entrance to a medical school. This looks like uniformity. As a matter of fact, the high school situation in America is utterly chaotic and the college situation hardly less so. No definite meaning whatsoever can yet be attached to graduation from a four-year high school, or to the completion of two years of college work. It means one thing to be a graduate of the Boston Latin School and an entirely different thing to be the graduate of a four-year rural high school in any section of the country. What two years of college work mean, I defy anybody to say. They may mean two years of hard work under favorable conditions; they may mean two years of spoon feeding by college instructors; they may mean two years of skilful cramming by the successors of the late Widow Nolen. Contrast this chaos with the definite standard of intellectual attainment indicated by the certificate of graduation from a German gymnasium, a French lycée, or the honors course of an English secondary school. Our student body is, as a whole, at a higher level of maturity and training than was the student body ten or fifteen years ago, because fifteen years ago there were no general requirements even in name. But it is still much more heterogeneous than that of any other nation in the world. Meanwhile, I should also add that certain medical schools do select their student bodies with such care that in these particular institutions a fairly homogeneous student body is assembled at as high a level as is practicable, though even their students are less well trained, I am sure, than the corresponding student body on the continent, where standards of scholarship are upheld by both professional and lay opinion. Improvement in respect to secondary and college education depends on development of courageous educational leadership—now excessively rare—on respect for scholarship in schools and colleges of education, of which there is just now little evidence, and on the formation of a public opinion which will realize that democracy is not synonymous with intellectual mediocrity and inferiority. The outlook is by no means altogether hopeful, because under the prevailing mistaken idea of democracy the American high school and the American college are trying to be all things to everybody. The study of medicine is an intellectual pursuit, and cannot reach a high uniform level unless some way is devised of segregating able and industrious students in competently conducted high schools and colleges.

In the matter of the curriculum, a great reform was accomplished when for a brief nongraded curriculum, running two or three years, a graded curriculum, covering four, was substituted. But the graded four-year curriculum has itself now become more of a hindrance than of a help. The block system, which requires that the laboratory subjects precede the clinical subjects, is, in my judgment, sound in theory, just as foreign experience shows that it is sound in practice. The graded four-year curriculum secures this arrangement by separating the preclinical sciences from the clinical subjects. Suggestions are from time to time heard, to be sure, that clinical subjects should be once more introduced into the early years; but they come from persons who have forgotten the lessons of our former confusion, who have not examined the confusion which exists in the French medical schools, or who do not know that the English, having failed with a system similar to that of the French, have now introduced the block. The little experiments now being made in the form of a weekly clinical lecture in the first and second years may safely be left to take care of themselves. They do not cost the student time enough to do any serious damage, and they are not likely to spread; for they will be opposed by both the teachers of the laboratory branches and by clinical teachers who, interested in the study of disease, want a solid foundation for their instruction. Of course, laboratory and clinical subjects must be interwoven; but the interweaving must take place mainly in the clinical years, when the student knows some anatomy and physiology, not in laboratory years before he knows either. For this interweaving, the responsibility falls mainly on the clinicians: if they know chemistry, physiology and pathology and have time enough to prepare their clinics, the interweaving will inevitably take place.

I have said that the four-year curriculum represents an enormous gain over the two-year or three-year repeated curriculum that preceded. But it is not by any means a finality. Its uniformity is nothing short of an absurdity. What sound reason can be given for requiring the able and the less able, the industrious and the less industrious, to complete practically the same course of instruction in the same period of time? In Europe, the able student spends the longer period in obtaining his education, because he obtains more and better training. In America, the effort to force inferior schools to be efficient by requiring a four-year course has crippled the better institutions, with the result that with very few exceptions all American medical students spend the same length of time in the medical school and pursue the same courses to the same end. More than this, the medical schools, though in name university departments, charge themselves with a degree of responsibility for their students which is utterly out of place anywhere but in an elementary school. These two characteristics, namely, the uniform graded four-year course, and the paternal, not to say maternal, responsibility which the university medical school in America feels for its students, has compelled the best equipped schools to reduce their enrolment to such a point that their opportunities are open to relatively few and their per capita costs are becoming prohibitively high. If the four-year course is broken up, except as a minimum, if we abandon, once and for all, the notion that there is only one way in which to train a physician; if, following this, varied opportunities are introduced so that students may by any one of several ways reach the medical degree within different periods of time, and

if, finally, we ceased to hold the teaching staff responsible for spoon-feeding the individual student, a far more flexible curriculum would be introduced. Of course, we do not wish to develop in America such monstrosities as the medical schools of Vienna, Berlin or Paris, where the students are so numerous that practical teaching is all but impossible. But there is surely a middle path between the classes limited to twenty-five, which we see in America, and the lecture halls containing hundreds, which may be observed on the continent. This middle path cannot, however, be trodden, unless we abandon the school-like features, which I have just pointed out, and treat medicine in fact as in name as a university discipline.

I have said that equipment, personnel and teaching have become more satisfactory in the medical sciences than in the clinics. Practically without exception in Class A schools the laboratory subjects are taught by whole-time men, specially trained for their tasks. Many schools are, to be sure, understaffed—mainly a matter of money; but even in most of these, the hard-pressed teachers still frequently find time to keep up a bit of research. Thus, though too great diversity and discrepancy exist between the well-to-do schools at the top and the poorly supported schools at the bottom, one may perhaps fairly assert that something like the same spirit of endeavor characterizes the teaching of the laboratory subjects in America today. We are better off than France and Great Britain, even if less well off than other countries abroad; and once more, our best is nowhere surpassed; indeed, not often equaled.

CLINICAL TEACHING

As to the clinical side, serious defects, lacks and irregularities are still far too numerous. On the continent, a clinic is conceived as containing an adequate number of beds, hardly ever less than a hundred, and usually more, with laboratories for teaching and research and a competent teaching and research staff. In Switzerland, Germany, Austria, Denmark and Sweden, practically every medical faculty has in this sense clinics in medicine, surgery, pediatrics, obstetrics, psychiatry, dermatology, ophthalmology and often neurology. In the same sense, a clinic being viewed as containing abundance of material under complete university control, with laboratories for teaching and research and a professional teaching staff, France possesses at Strasbourg a complete medical school and at Paris abundant material, to be sure, though few real university clinics; outside Paris and Strasbourg, hardly anything measures up to this standard. Great Britain possesses the germ of a few medical and surgical clinics in the London and Cardiff units, and a pediatric clinic at Glasgow. But a fully developed university clinic, in the sense in which I am speaking, does not today exist in Great Britain. In America—if one is not too strict as respects amount of material—one could perhaps find in our eighty-odd medical schools a dozen or so university medical clinics, six or eight university surgical clinics, five or six pediatric clinics, five or six psychiatric clinics, one or two obstetric clinics; special clinics in the German sense in neurology, dermatology and ophthalmology are unknown. Contrasted with the poverty of a decade ago, progress has been marked, for such clinics as have been created in this brief period are, though too limited in amount of material, admirably equipped and well supported; but we have a long road to travel before a desirable minimum has become general. Meanwhile, let me add, there has been a striking and quite general improvement in all hospitals, whether teaching or nonteaching. The facilities for teaching, treatment and in a measure for research have improved immensely within a decade. What is even more significant, ideals have been strengthened; men realize that more is expected of them. Hence, more and better work is going on. This is all to the good, and I am happy to acknowledge and record it; but it is wholesome for us to realize at the same time the great gaps that exist on the clinical side in our teaching institutions, the great strides that still have to be made before we can present even a tolerably even and a tolerably unbroken front.

In respect to clinical teaching, with all due sympathy for the state of Connecticut, the real scandals in the teaching of regular medicine have been almost entirely suppressed and eliminated; clinical teachers undoubtedly give more time and thought to their school duties than they did a decade ago. In a few places, full-time teaching has been introduced; in a few others, a more or less close approach to it.

In the strongest institutions, of which I am now speaking, perhaps a half dozen in all, the material conditions which make for good teaching and productive clinical research are perhaps the best to be found anywhere in the world. It remains, I am free to say, to be seen whether they are worth what they cost, whether patients will be so much better cared for, teaching so much better done and research so much more fertile, that the expenditure of money and energy will be fully justified. A heavy responsibility rests on these favored groups—a responsibility of which, taken altogether, I believe them fully conscious. Of the remaining schools—over seventy in number—we may fairly say that clinical teaching has been partly professionalized in some, hardly at all in some, and not at all in the rest. Thus, to a considerable, though varying extent, clinical teaching continues to be an incident in the life of a busy practitioner. The good practitioner is, and should be, the busy practitioner; the teacher, however, needs leisure—more leisure than the practitioner—to read, study and investigate. The two callings are inherently at war, just as all serious purposes in life get in one another's way. We have as yet neither institutional nor scientific standards strong enough to control, as, on the whole, they did control in the Germany of the good old days.

At this point, I should like to call attention to a distinct peculiarity in our American situation. On the continent, except, I believe, at Brussels (Brussels is only a partial exception) universities are state supported; the hospitals used for teaching are sometimes nationally supported; sometimes provincially supported, sometimes municipally supported; only occasionally are they, and as a rule even then only in part, supported by endowment. But in any case, the clinical teaching privileges of the state-supported and controlled university are so unrestricted that, educationally viewed, the medical faculty is a state affair. In Great Britain, on the other hand, despite the occasional state subvention, the medical faculty is in private hands.

Both systems are found in America. East of the Mississippi, medical schools are privately supported; west of the Mississippi, they are mainly tax supported. In general, it would look easier to raise the necessary sums by taxation than by private subscription; for an infinitesimal tax levy will produce a considerable sum, while $1,000,000 in cash must be raised every time an endowed institution needs an additional income of

$50,000. Thus far, however, it has proved easier to interest a small group of private donors than to stir the entire body politic. Hence, the leadership in medical education in the United States lies at this moment incontestably with institutions under private management. Only one of the states—Michigan—has provided a plant comparable with the best plants of the endowed schools; Iowa will shortly be in the same class; Wisconsin is about to start a hospital of moderate size; Illinois has ambitious plans, the realization of which has begun. The other states lag behind—some of the richest lag amazingly far behind. Meanwhile, two municipalities—Cincinnati and Louisville—have given local medical schools complete control of their respective city hospitals, and one—Rochester, N. Y.—has been wise and far-sighted enough to make its new city hospital part and parcel of the university hospital of the local university, an endowed institution. Fragmentary privileges, sometimes very valuable, as at the Boston City Hospital, sometimes almost valueless, are conceded to endowed institutions by other municipalities. In general, however, the vast educational potentialities of city and state hospitals are either wasted or very ineffectively utilized. Meanwhile, the cost of maintaining separate university hospitals by subscription or endowment is so great that, unless already existing facilities are made available under unqualified university control, our clinical development will be heavily handicapped, as compared with that of continental nations; for our universities, under necessity of providing out of their own funds hospital as well as teaching budgets, will be seriously disadvantaged, as compared with European universities, which obtain, without expense to the university budget, hospital facilities far greater than we can possibly endow. In this matter, the state universities will enjoy an advantage in comparison with our endowed universities, if they succeed in obtaining the funds necessary to provide teaching and research on a liberal basis.

The brief survey that I have now made shows, I think, that, though we have made more progress than any other nation in the last decade, though our best is in certain respects equal to the best anywhere and in one or two respects perhaps superior, still the truly excellent is still in America decidedly the exceptional. Let us not forget that: I repeat—in medical education in America, the truly excellent is still exceptional. We are still near the beginning. Our few medical, surgical, pediatric and psychiatric clinics need to be many times multiplied; and we must now begin to develop special teaching and reserach clinics in important fields hardly as yet touched.

REMAINING PROBLEMS

The frank exposition which I have now completed gives no ground for discouragement, but just as little for complacence. We have accomplished much; but much more remains to be accomplished. May I briefly indicate some details?

The whole country needs to reconsider the problem of secondary and college education. We are passing through a quantitative orgy. For years we have been mainly engaged in getting more people into high schools and colleges. They are all bursting with pupils. It is time to look at the qualitative side, to ask ourselves where and how we are to get teachers and what we are to exact of students in the way of intellectual performance. It is a question that this Council can do nothing about. The people at large and those charged with secondary and college administration must show unwonted courage and intelligence if order is to be brought out of the existing chaos.

The Council can, however, make an important contribution through a reclassification to be effective after a period of years. I deprecate haste, for haste is apt to get fulfilment of the letter rather than of the spirit—and it is the spirit that counts. And, since our weakness is now mainly on the clinical side, I should hope that the new classification would emphasize clinical development. If a clinic is conceived as containing something approaching 100 beds with laboratories for teaching and research and a staff unconditionally chosen by the university on the basis of competence; and if, further, such clinics in medicine, surgery, pediatrics and obstetrics are considered indispensable to a Class A school, a new classification would take place spontaneously. In another decade, other subjects could be similarly treated. It will take us twenty or thirty or forty years to round ourselves out; but the precise period need not trouble us, if we are steadily, never hurriedly, never rashly, moving toward a definite goal.

There is another point that needs clarifying. Our medical schools are now, thanks, above all, to the energy and wisdom of Dr. Bevan and his associates on this Council, practically all university departments. But the universities are by no means all conscious of just what that means. University connections mean university ideals, university contacts, university support. University ideals include effective teaching and productivity; how many university heads apply the same standards of teaching and research to medicine as to physics? University connections mean university contacts; but there can be no effective university contacts if the medical school is a practically autonomous and self-contained institution situated in a remote town or, worse still, is divided in the middle, the laboratory half of it on the university campus, the clinical half left to the tender mercies of busy practitioners, whether ten or a hundred miles distant. The medical school is, as a matter of fact, an organic thing, laboratories and clinics requiring intimate interaction; a split school is, therefore, in my judgment, utterly untenable. Moreover, the entire school needs contact with the rest of the university. In some cases, this has become impossible; every effort should be made in these cases to circumvent the disadvantages due to separation. Finally, university connection means university support. Not the dean or the faculty, but the president and the trustees should procure the funds needed to develop the medical school, just as they now procure the funds needed to provide for the colleges of art and science. The business of the medical faculty is to look after patients, students and science. They have no time to hunt money. Deans and professors in colleges of art don't have to go begging for money. Hence, though our medical schools have become university departments in name, they are not yet fully university departments in fact; nor will they be, until the medical faculties train presidents and trustees. Let me add in fairness that there are exceptions; a few presidents and treasurers take as much interest in financing their medical schools as they do in football—a few.

May I add one further word touching on teaching personnel? The men who, a generation ago, gave American medicine its momentum were men of cosmopolitan training; they knew the best in our own country, Great Britain, France and Germany. They read and spoke German and French; they had intimate personal associations with the prominent European workers. As

conditions have, however, improved in America, workers have tended to stay at home. The best of them can read scientific German or French, but amazingly few can really read or speak any language but their own; and they have no such personal intimacies as their predecessors. Now, however much we have improved, we are not good enough to be sufficient unto ourselves, and we never shall be. Science is international; it advances in most unexpected fashion, now here, now there. And stimulus does not communicate itself best through the printed page. Men must know one another and work with one another. Mere Cook's touring through scientific laboratories abroad does not suffice. We must return to the old way of spending a couple of years in Europe, just as Europeans are getting in the way of spending a year or two with us. At the moment, expense makes this a serious matter; perhaps it can never be as common as is desirable. But for the leaders and those who aspire to leadership, cosmopolitan training is absolutely indispensable. If the fact is once recognized, ways can probably be found to circumvent the economic difficulties.

PRESENT NEEDS OF MEDICAL EDUCATION *

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The improvements in medical education made during the last twenty years have resulted in the securing of better buildings, more and better equipped laboratories, larger financial incomes, more uniformly high entrance requirements, better relationships with dispensaries and hospitals—including greatly improved methods in clinical teaching—and better selected and organized staffs of both full-time and part-time teachers. Twenty years ago, the majority of medical schools were independent institutions, and many were stock corporations conducted for profit. Now sixty-three, or 79 per cent., are integral parts of universities, and most of these are under the control of the university, so far as maintenance and teaching are concerned. The conditions existing twenty years ago were evidently viewed in a complaisant, matter-of-fact manner, but now one would be absolutely appalled if the conditions then existing were suddenly reestablished. Indeed, only those who have been in close touch with medical education in all parts of the country can appreciate the almost phenomenal changes that have taken place during the last two decades. These very improvements, however, have resulted in other and newer problems:

MORE CAREFUL SELECTION OF INSTRUCTORS

An enlarged personnel of medical faculties has not infrequently resulted in the securing of those without a fair training in the subjects that they have been engaged to teach; a larger number have lacked the essential training in pedagogy, while few, indeed, have possessed the ability to impart knowledge coupled with the instinct for productive research. More care should be taken, therefore, in selecting or retaining as teachers only those who possess these highly desirable qualifications. This statement is made with the full recognition of the scarcity of well trained teachers, especially for the laboratory subjects of the medical curriculum. It is believed, however, that the supply of such teachers is being increased through such opportunities as are now being provided by the National Research Council, the graduate schools of our prominent universities, and through fellowships, such as those established in some of our graduate medical schools.

CORRELATION BETWEEN LABORATORY AND CLINICAL TEACHING

Medical teaching in both laboratory and clinical departments has been greatly improved during the last twenty years, and graded courses of instruction have replaced the ungraded series of didactic lectures which formerly were given in some of the medical schools usually alike to the classes of two, if not of all four, years. It is now recognized, however, that the teaching will be much more efficient if the student, while obtaining instruction in clinical signs and symptoms, can be made to understand the pathologic conditions, disturbances of function and biochemical changes that accompany such signs and symptoms. This understanding can be provided only by a better correlation of the teaching of the laboratory subjects with that of the clinical years. Certain measures toward this end are already being generally adopted, such as the clinical-pathologic conferences, medical-surgical conferences (Johns Hopkins), courses in surgical anatomy, surgical pathology, etc. More attention is also being given to disturbances of function and the chemical changes which are bringing the teaching of physiology and chemistry into more intimate relationship with that of clinical symptoms and signs. These beginnings of correlation will be aided and accelerated by the closer physical contact of laboratory and clinical departments, by the closer proximity of laboratory buildings and hospitals, and by the establishment of buildings containing both college laboratories and hospital wards, such as those being provided for Vanderbilt University and the University of Rochester, and which, to a varying extent, have long since been provided in other medical schools.

UNDERGRADUATE AND GRADUATE COURSES

Much has been said in recent years with regard to the rush into specialization by recent medical graduates, without either the essential study of the fundamental branches relating to the specialty or the thorough drilling in the diagnosis and treatment of patients representing the particular specialty selected. This tendency has been due, partly, at least, to the overemphasis laid on certain methods of treatment in the undergraduate curriculum at the expense of the simpler routine methods of diagnosis and treatment, which should have been emphasized and with which every general practitioner should be familiar. To develop general practitioners should be the primary object of the instruction furnished in the undergraduate medical school. This basic training in medicine can be best provided, it is believed, if, in addition to the undergraduate department, the medical school has established also a graduate department. Then the unusual cases and the more highly specialized forms of treatment can, and very likely will, be dealt with in the graduate medical school. At present, unfortunately, in most of the medical schools, the clinicians habitually present to the class the technical matters or rare cases in which they are naturally more interested. This problem is now generally recognized and will have further discussion at this conference.

* Read before the Annual Congress on Medical Education, Medical Licensure, Public Health and Hospitals, Chicago, March 3, 1924.

LIMITATION OF ENROLMENTS

The limitation of enrolments in medical schools did not begin until in 1912, when the Medical Department of Johns Hopkins University announced that its classes would be restricted to ninety-six students each—a slight increase over the numbers of students enrolled at the time. Since then, other medical schools have gradually taken similar action until now there are fifty-nine colleges which report such limitations, which range from twenty-five to 170 in each class. We know of no instance in which the limitation fixed has resulted in an actual reduction in the number of students enrolled, the limitation having been fixed apparently to prevent future overcrowding.

TABLE 1.—*Capacity of Medical Schools Under Limited Enrolments*

Medical Colleges	No. Colleges	Total Enrolment 1st Year	2d Year	3d Year	4th Year	Total Enrolments	Average per College
Class A colleges:							
4-year colleges....	49	3,731	3,424	3,270	3,094	13,519	279
2-year colleges....	10	423	391	.....	.....	814	81
Estimated capacity:							
4-year colleges....	10	1,032	807	851	898	3,588	359
2-year colleges....	1	21	13	.....	.....	34	34
Totals, Class A colleges.....	70	5,207	4,635	4,121	3,992	17,955	256
Class B colleges:							
Capacity reported..	4	196	186	190	190	762	190
Totals, A and B colleges.....	74	5,403	4,821	4,311	4,182	18,717	253

Such limitations are strictly in accord with efficient medical teaching; nevertheless, they have caused some difficulties not foreseen twenty years ago. They have resulted in a rush of students to the medical schools where such restrictions had been established. The limitation of enrolments, coupled with the rapidly increasing numbers of medical students, caused considerable alarm lest well qualified students might not be able to secure enrolment in the better medical schools.

Careful attention has been given to this problem during the last several years, medical schools have been urged to provide space for reasonably large classes and, indeed, much larger enrolments have been provided for than could have been admitted in 1920. The numbers of well qualified students seeking admission to medical schools have also continued to increase, but more than adequate space has always been provided for them. In 1921-1922, the sixty-six medical schools in Class A reported a total capacity of 15,925 students, although in that year only 12,610 students were enrolled in those institutions, there being ample space, therefore, for 2,315 additional students. At the present time, the seventy Class A medical schools report a total capacity for 17,955 students, although their present enrolment is only 16,736 students—ample space remaining for 1,219 students. It is quite evident, therefore, that the 592 students reported in Class B schools and the 480 students in Class C institutions have not been forced into those schools through the lack of space in the Class A institutions.

Reports with regard to the inability of students to secure enrolment in medical schools have been considerably exaggerated. It has been variously stated that medical schools turned away "thousands of medical students," or "twice as many students as were enrolled," etc. It is true that students have been turned away from some near-by medical schools, but there have always been places for them elsewhere, and we have yet to hear of any well qualified student who has failed to secure admission to some Class A institution.

The cause of the confusion is as follows: It is well known to deans of medical schools that students now make application to as high as a score of medical schools; some matriculate in, or even make deposits toward, tuition fees in several in order to be sure of a place in some good school, and they are enrolled in as many different medical schools, but can enter only one at the beginning of the session. This accounts for the fact that some medical schools find that certain students fail to show up when the session actually begins, so that they have less than their full quota. During the present session, in the seventy Class A medical schools there is room for 17,955 students, whereas there are only 16,736 students enrolled in them. Indeed, they could care for all the 17,808 students enrolled in all medical schools of Classes A, B and C, and still have 147 places vacant.

ENROLMENT IN MEDICAL SCHOOLS STILL INCREASING

In 1919-1920, the total enrolment in all medical schools was 13,798, but this enrolment has been rapidly increased. In 1921 there were 14,466; in 1922, 15,635; in 1923, 16,960, and in the present year (approximately) 17,808. (The figures given are exclusive of the fifth year students, who are in hospitals rather than medical schools.) Since 1919, therefore, the annual enrolment in medical schools has increased at the rate of approximately 1,000 students each year. Instead of a dearth of medical students as a result of the higher entrance requirements, as was at one time predicted, the increase since the general adoption of those requirements has been unusually rapid. During the present year the total number enrolled is the largest since 1912.

TABLE 2.—*Enrolments of Medical Students for Eight Years, Showing Variation in Numbers by Classes*

College Session	Freshmen	Sophomores	Juniors	Seniors	Totals
1914-15	3,373	3,919	3,675	3,864	14,891
1915-16	3,582	3,094	3,559	3,727	14,022
1916-17	4,107	3,117	2,866	3,674	13,764
1917-18	4,283	3,521	2,893	2,933	13,630
1918-19	3,104	3,587	3,272	2,967	12,930
1919-20	4,234	2,837	3,464	3,263	13,798
1920-21	4,825	3,588	2,637	3,416	14,466
1921-22	5,412	4,219	3,355	2,649	15,635
1922-23	5,162	4,615	3,861	3,322	16,960
1923-24*	5,197	4,449	4,286	3,876	17,808

* Estimate.

The lowest ebb in the enrolments in the respective classes following the adoption of higher entrance requirements is shown by the figures underscored. The dotted lines are under figures showing a temporary diminution due to the World War.

GRADUATE MEDICAL EDUCATION

Beginning in 1916, three complete inspections of graduate medical schools have been made by the Council. The first inspection was in 1916, when twenty such institutions were listed. At that time not one of the institutions was publishing, in its announcements, statements regarding its courses sufficiently descriptive to show that any scheme of graded instruction was being followed; few of them were limiting their courses strictly to physicians; records were seldom kept other than in regard to the payment of fees; such laboratories

as were found were poorly equipped, and all but two or three were conferring pretentious, diploma-like certificates for courses as short as one or two weeks.

One beneficial result of this first investigation was that it led to a discussion of higher degrees in medicine. The consensus of opinion favored the use of the Master of Science and Doctor of Philosophy degrees as a reward of proficiency rather than the creation of new degrees, of which there was already a superabundance.

The second inspection was made during the session of 1919-1920, and it was found that many improvements had been made. Some of the institutions, particularly those of Tulane and the New York Post-Graduate Medical School, had improved their teaching plant, enlarged their courses of instruction, and added materially to the equipment of their laboratories. At the University of Minnesota and the Mayo Foundation, a series of fellowships had been established providing courses of three or more years of instruction in the various specialties. At the University of Pennsylvania, the Medico-Chirurgical College and the Philadelphia Policlinic had been taken over and developed into a graduate medical school. During this inspection, the attention of the officers of the various schools was called to the iniquitous practice of issuing diplomas for unduly short courses of instruction, and the practice was voluntarily discontinued by the majority of institutions.

Immediately following this inspection, the Council appointed a committee for each of the laboratory and clinical specialties, including ten physicians generally recognized as experts in the particular subject. At the following annual conference (in 1921) these committees brought in reports setting forth the minimum length and subject content of courses of graduate training by which, in their opinion, physicians might develop proficiency for the practice of the respective specialties. Copies of these reports were sent to executive officers of all graduate medical schools, and were otherwise widely circulated.

In 1922-1923, when the third inspection was made, it was found that most of the graduate medical schools, particularly those of New York City, were refusing to grant certificates for courses of less than six weeks in length; more and better graded courses were being offered; closer attention was being paid to entrance qualifications, and better records were being kept of the students' actual work. Some institutions still remained, however, which were still granting diploma-like certificates regardless of whether the recipient had obtained proficiency in the subject, and for courses of as short as a single week.

After this inspection had been completed, a set of principles regulating graduate medical education was prepared and included in a report, which was read at the conference on medical education in 1923. These principles and a list of the graduate medical schools which the Council had found worthy of approval were submitted to and approved by the House of Delegates of the American Medical Association in June, 1923.

The principles adopted provided for requirements for admission, records, essential supervision, curriculum, grading of instruction, qualifications of teachers, equipment of laboratories, library and museum facilities, essential hospital and outpatient facilities, annual announcements, and the granting of degrees, diplomas and certificates.

Included in the third inspection were several universities in which opportunities for graduate work in medical specialties—particularly those in the laboratory branches—were being offered under the supervision of the graduate school of the university. Altogether, about thirty-five different institutions were investigated, of which fifteen were admitted to the Council's approved list. Through improvements made since that time, seven other schools have been added to the list. At present, therefore, there are twenty-two graduate or postgraduate medical schools which are known to be providing well organized and graded courses of instruction for physicians. This represents a great improvement over conditions existing in 1916, when a physician had to choose from among the maze of unstandardized short courses which might or might not provide him with the instruction he was seeking.

No country has a greater abundance and variety of clinical material than is to be found in the United States, nor are there greater opportunities for the development of graduate medical teaching. There are also many physicians scattered throughout the country, who in education and special training are eminently qualified to act as instructors. Scarcely a beginning has been made, however, toward the proper organization by which these facilities can be used.

A search is being made, therefore, for other institutions in which ample clinical material is available, and where, with proper organization, satisfactory courses of advanced instruction for physicians can be arranged. For example, there are, in the United States, 263 hospitals which are offering 590 advanced internships in the various specialties to physicians who have completed an internship in a general hospital. It is believed that, in many of these institutions, satisfactory opportunities can be developed whereby these physicians can secure the essential preliminary review courses and instruction in technic as well as the valuable clinical instruction and experience that are now being provided.

EXTENSION GRADUATE TEACHING

Another important field for graduate medical education is that of extension courses whereby opportunities for graduate instruction can be taken to the active practitioners who, for various reasons, cannot get away to attend graduate medical schools. Such instruction, indeed, can and probably will be established by the state or other universities through their undergraduate or graduate medical schools. A beginning has already been made in this direction. In addition to lectures there should be opportunities provided whereby practicing physicians can obtain instruction in the more recent developments of laboratory procedures used in both diagnosis and treatment, and have their use demonstrated in diagnostic clinics. The opportunities for further development in extension graduate teaching are abundant, and are sure to result in great good, both to the practicing physician and to his patients.

RURAL DISTRICTS AND PHYSICIANS

Thorough investigations have been made with regard to the scarcity of physicians in rural communities. It is true that such a scarcity exists; and that this scarcity is becoming more pronounced is evident. It is clearly due to economic conditions resulting in an unequal distribution of physicians, and is not due to any shortage in the total supply of medical graduates. An extensive investigation on this subject has just been made under the direction of Mr. Flexner and the General Education Board, and a report is soon to appear in print.

THE CLINICAL TEACHER AND THE MEDICAL CURRICULUM *

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In a moment of self-communing, Leonardo wrote in his notebook: "The supreme misfortune is when theory outstrips performance." This might well be taken as a motto to hang in our several faculty rooms, for it is one thing to sit and theorize about teaching, and quite another to find people capable of carrying out our altogether admirable ideas—or to practice them ourselves. This probably has been so from the beginning—ever since pupils were first assembled in schools; and through the centuries what should be done under the circumstances has puzzled many minds.

Some very wise things, however, have meanwhile been said: that "education is a life-long process in which the undergraduate makes only a beginning"; that "it is the business of the teacher to *arouse* curiosity, not to *satisfy* it"; that "the measure of a teacher's success lies not in his own ideas but in those which radiate from his pupils." Indeed, it is quite possible that the best teachers, in their conferences with students, are unconscious of the fact that they are professionally engaged and have no theory about the matter whatsoever.

But there are fashions in teaching, like fashions in other things, and one must conform or be regarded as out of date, even though, after all, we may reach our destination whether we ride side-saddle or ride astride. Just now, for example, in our medical schools the "didactic lecture" is taboo—as much out of style as the crinoline or the bustle, admirably adapted as they were to conceal the defects of certain figures. The cut of our garments for the most part is determined for us by some unknown authorities in London or Paris for dire purposes of their own. We may cling to our old underwear, but outwardly we must adopt the particular design and frills others have thought becoming, or be smiled at. So it is with the fashions of teaching, and who first put the tabu on lecturing was probably some one in authority incapable of holding the attention of a group of students by this method. I am glad of this, for I too am similarly defective, but feel, nevertheless, if we wait long enough that the didactic lecture, perhaps under another name, will return some day to popular favor as inevitably as the short skirt.

The trouble is that individuality is now submerged: our teaching, like our dress, must—to use a greatly abused word—be standardized, as though our schools were factories. There is much that a present-day medical student might envy in the opportunities offered to a young man of a century ago, apprenticed to such a person, let us say, as Nathan Smith, with the chance to get at the outset an intimate knowledge of people and of people's maladies; to discuss the problems of the sickroom with the master while driving him in his gig as he went on his distant house-to-house rounds; to have his collateral reading directed; and subsequently to take a short course somewhere in the so-called fundamentals and get his degree. In our present-day schools, not only is this process reversed, but the Nathan Smiths, if there are any, scarcely know even the names of their many pupils, whom perforce they meet in a classroom so crowded that the elbow-to-elbow method of teaching and learning is no longer possible.

Thus it is that the personal influence of the teacher has largely become swamped, and we try vainly to atone for this by juggling with the curriculum, forgetful that no two instructors in any two schools can possibly reach students with precisely the same methods; and that no two students get their inspiration, such as it is, in the same way out of their particular school or its individual instructors.

Then, too, there is another difficulty. Those unknown people who set the fashions and who determine the proper number of pupils that are to be taught, and the distribution of their hours, and the way they should be instructed and how they should be examined and graded, expect something else than instruction: some of them, indeed, wield a big stick labeled "Research," which strikes terror to the rabbit-heart of many a hard-driven and underpaid teacher, not all of whom can dare say, as Roland the physicist said when asked what he did with his undergraduate students: "I neglect them."

It is a good thing to strive for an ideal, but futile to seek the impossible. Recently a surgical teaching-position in a well known hospital was to be filled, and those appointed to choose a candidate were told that he must have at least the following seven qualifications: (1) He must be a "researcher" (God save the mark!); (2) he must be able to inoculate others with a spirit for research; (3) he must be a tried teacher; (4) he must be a capable administrator of his large staff and department; (5) he must, of course, be a good operating surgeon; (6) he must be cooperative; (7) he must have high ideals, social standing, and an agreeable wife. Of course there is no such person. Any one or two of these qualities, if sufficiently outstanding, might be enough to justify an appointment, provided a junior staff makes up for the others. This institution has had to be satisfied with such a one, and may well be.

Being in the confessional, I must admit after this preamble that I have no very definite convictions on the subject the chairman of this conference has pressed me to discuss—"the methods that should be pursued in educating a medical student"—and the more years I spend in the business, the greater diffidence I feel in expressing any views whatsoever. Such as they are, those which I now think I hold are almost certain to be regarded as old-fashioned, if not reactionary, which is embarrassing.

I presume the Harvard Medical School is no different from most medical schools in that no faculty member is quite satisfied with the existing curriculum and, as a result, about every three years some one protests with sufficient energy to force on his reluctant colleagues some radical changes. It may be likened to a game, with the curriculum the ball, the preclinical teachers reinforced by the department of public health on one side, the clinical teachers on the other, very little scoring of late years having been done by the latter. It is a game which will never be over, and just what the curricular score may be at the moment does not appear to make any great difference: for, provided a school secures the best available teachers for its various departments and at the same time selects its students with care, and not too many of them, the product seems to be pretty much the same, whatever the system—or lack of it.

Students can be well grounded through the medium of any course. I look back with a good deal of amuse-

* Read before the Annual Congress on Medical Education, Medical Licensure, Public Health and Hospitals, Chicago, March 3, 1924.

ment on the discussions I used to have with one of my colleagues at the Johns Hopkins against whom I was bidding for some additional hours for an extracurricular exercise that I had offered in operative surgery. He had offered a course in surgical pathology for the same hours, and the discussion usually ended up with his saying that he could teach the whole of medicine with his subject as a starting-point. I of course replied that I thought I could do the same. He was an enthusiastic teacher of his subject, as I hope that I was of mine, but I was the one to be humiliated, for my much-cherished course is no longer given. Something else, probably better, now takes its place in Baltimore, which is probably just as well; but the point of the story is that we may both in a way have been right in thinking that medicine may be successfully taught with any course as a central point of radiation.

In any old and established school, the curriculum inevitably becomes hide-bound. To make a change anywhere requires a delicate surgical operation under general narcosis, and it's usually found difficult to close the wound and secure primary healing. Experiments of this sort are only possible with a new school which has a young and elastic skin. Consequently, the long-suffering "Curriculum Committee" of older schools is apt to become a most conservative body, for otherwise many hours must be expended in persuading the collegiate family that an operation is necessary, and afterward in dressing with salves the painful wounds which have been made. With this we are all familiar, and it is usually due to the effort to insert something new rather than to remove something unnecessary from under the greatly stretched curricular skin.

Meanwhile, we have become fairly well accustomed to the view that subjects beginning with the study of morphology and ending with the clinical specialties must be taught in a given sequence. So far as the curriculum is concerned, our discussions in faculty-meeting are given over largely to the struggle for elbow-room between established courses, of which there are too many. Never, so far as I recall, has such a topic arisen as the comparative abilities of the teachers to give inspiration, whatever their subject: whether John Doe who happens to be Professor of Anything-you-will is not perhaps the best man because of his personality, ideals, broad views and wide experience, to meet the entering students for a series of exercises, lectures or clinics as he will, which would make clear what lies before them in the great profession they have entered, and how they can get the most out of it and contribute the most to it. Far better if Professor John Doe should happen to be the anatomist or biologist, but we are today confronted by the fact that these men no longer have had experience in the field of work—medical practice—which the majority of students enter our schools with the intention of pursuing.

There was a time, a generation ago, after our more progressive schools first adopted a four-year requirement, when from the beginning of their course students came under the influence of teachers whose point of view was colored by the fact that they at the same time were engaged, or had been once engaged, in the practice of their profession; and in one sense we have now, in this respect, unconsciously gone back to the two-year standard. It is excellent for those rare and superior students who look forward to a pure science career; but we may have a good many doubts about the advantage to the others who represent 95 per cent. of the class. I do not for a moment mean to suggest a return to the former system, but merely to ask whether the pendulum may not have swung too far: whether we are not making unnecessary and futile efforts to create out of the 95 per cent. a species bound by the nature of man to be rare.

After all, experience has shown that it perhaps does not make any very great difference, provided Nathan Smith is on one end of the log, with the right kind of students, and not too many of them, on the other; and I often feel that we are pressing for formulas to solve something for which there is no formula. The personal equation of the teacher does not appear in the syllabus issued from the dean's office, though it is known in every students' boarding-house.

We have just been going through one of our triennial turn-overs at the Harvard Medical School in the endeavor to find out what is wrong with the student and with our method of teaching. This time, pressure has been brought to bear by certain members of the faculty of a philosophical turn of mind, who have discovered that the trouble with the undergraduate is that he has no time for intellectual cogitation. Consequently, at the risk of not meeting our obligations to state board requirements, we have materially cut down our hours of instruction so that the students have their freedom Tuesday afternoon and Thursday afternoon and all day Saturday and Sunday. We have as yet made no statistical study of the amount of rumination they do in these free hours; nor do I think such a study will ever be made, because by the time there are sufficient data to rely on we shall probably have gone back to the old system, or new courses will have crept in to fill up these free afternoons. A medical faculty abhors spare hours no less than Nature a vacuum.

Our school is not unlike other schools, in having raised a large brood of independent subdepartments, all of which demand—indeed, deserve—additional hours in which to teach their special subjects, of which there is no end. However, we will, almost all of us, freely admit that probably nine out of every ten students enter medicine with the expectation of engaging in practice, and it behooves us, therefore, to give them the best possible training for this responsible career. Whether we are doing so at present is open to grave doubts—and thinking about it on their spare afternoons is not a satisfactory replacement for hours of actual observation of patients during the all-too-brief period now given over to the students for their clinical work.

As a matter of fact, a large number of the students fret considerably during their first two years, and not a few of them only begin to show their real worth and have their interest stimulated when they have actually come to the bedside and have an opportunity to study and care for the maimed and afflicted close at hand. Our preclinical brethren tell us the trouble is we do not sufficiently emphasize in the clinic the bearing of what the students have previously been taught on the clinical problem before them. At this we scratch our heads for a ready reply, but the obvious answer is that what the students have been taught *has* no apparent bearing on at least 75 per cent. of the countless minor ailments with which they must become familiar—the flat-footed head waiter, the old man with a chronic scab on his lip, the young woman with a backache, or a lump in her breast, the baby with convulsions, the workman with an ulcer on his leg, or a fistula in his bottom, or, worse, with an infected or injured hand

which, improperly treated, may be the end of his wage-earning days. There is no end to it—all very trifling, you may say, when we consider the public health movement, and the eradication of yellow fever from the world, yet each of these individual people is greatly concerned about his own personal ailment, and the sum total is enormous. With such things the vanishing race of family physicians was once chiefly concerned, while the chiropractor and science-healer now takes his place.

In our pursuit of the medical sciences we have lost touch with the art of medical practice, and all the anatomy and physiology and pharmacology in the world is not going to guard a young doctor against making an unnecessary number of diagnostic mistakes and consequent errors of treatment unless he has been brought face to face with clinical problems and learned sound methods of treatment for an ample time. And when he has been thinking in terms of the patient for only two years instead of four, there are so many countless minor conditions of the sort I have indicated, they cannot possibly be mentioned, far less shown and demonstrated to every student in the short time at one's disposal.

If these things are bad for the prospective physician, they are infinitely worse for the prospective surgeon, whom I may possibly have chiefly in mind, for, in proportion to the seriousness of his therapeutic agency, wrong diagnoses may lead to calamities unknown to the practice of physic. An acquaintance of mine, greatly interested in the furtherance of medical science, had a trifling injury to his ankle, which was put up in so tight a dressing that on its removal the top of his foot was found to have sloughed; and many months of slow and painful healing followed. The only doctor who makes no mistakes is the doctor who has nothing to do, and a calamity of this sort may happen, alas! to any of us; but a little more of the art and less of laboratory science would make its occurrence less likely.

I sometimes feel that if we were really eager to put the present curricular sequence to a test, it would be a telling experiment to reverse our program entirely: to put the students into the clinic for the first two years and show them disease and get them interested in the problems of disease, meanwhile teaching them as much of structure and function as is possible; and then to turn them loose in the laboratories for their last two years. Like as not, under these circumstances there would be a much larger proportion than the present 5 per cent of our students who would really be fired by the enthusiasm of research and perhaps choose it as a career, or at least tend throughout their lives to pursue their problems to the laboratory.

Here, again, my thoughts are perhaps colored by my own experience, for in my own day, though we listened to some very admirable lectures in pharmacology for which my marks show that I passed a creditable examination, I confess that I am unable to write a prescription and doubt if I have ever used more than a dozen of the countless drugs that went in and out of my head during that semester. We had, too, what I am sure must have been an excellent course in physiology of which I remember little, and this is just as well, for my classroom notes are full of statements since largely contradicted, and hypotheses largely disproved. I must confess that, seven years later, when thoroughly saturated with and weary of the clinic, I spent a year in a physiologic laboratory, and over some modest problems enjoyed myself as I never have done before or since; but this would have been no possible replacement, in the needs of a surgeon at least, for the gruelling drill we had in anatomy and pathology, which always have been and always will remain the two essentially fundamental subjects. There is much, in short, that was taught and is still taught today to students in their preclinical course, that is unnecessary and could well enough be omitted, or at least left for their graduate years of study.

I may give an example of how an overtrained laboratory instinct may affect our senior students, our house officers, and, I fear, many of the graduates now engaged in what is called group medicine—a form of practice which lends itself to the making of an unnecessary number of expensive and useless routine tests. A patient was admitted in the fall to one of our well known hospitals noted for its spirit of investigation and the exactitude of its work. The only thing that appeared to be wrong with the man was that he had a fever of unknown origin. A variety of people whose special duty it was had made detailed examinations of blood, urine, sputum, stools and cerebrospinal fluid: microscopic, chemical, bacteriologic. His thoracic and abdominal viscera had been thoroughly and expensively studied by the roentgenologist. His basal metabolism had been estimated and recorded; electrocardiograms had been taken; and specialists were called in to exclude nose, throat, teeth, ears and eyes. All of these things took time, and meanwhile the fever persisted. At this juncture, a country doctor who had enjoyed none of the present-day laboratory advantages happened to visit the hospital, and as he passed this man's bed in the course of the morning's rounds he casually remarked: "I am surprised to see that you still have an occasional case of typhoid fever in your neighborhood."

To point a moral, this tale admittedly has been somewhat adorned: typhoid fever is now rare; careful studies of our patients are not to be superseded by snap diagnoses; yet the incident illustrates what many clinicians recognize with lamentations as a modern tendency to practice which, leaning heavily on the laboratory, forgets to examine—or thinks it unnecessary to examine—the patient.

It is perhaps unjust to ascribe this attitude of mind entirely to our present-day medical curriculum, but it was with the idea of possibly offsetting this tendency that I ventured two years ago, with the approval of the anatomic department, to introduce an optional exercise for the first-year students on one of their off days supposedly devoted to self-education, so that they might begin to think in terms of the living patient from the very outset of their course. This was not done, I may add, without criticism on the part of some members of the faculty, though every effort was made so to conduct the exercise that the average student might have his anatomy and embryology illustrated by clinical pictures in such a way that he would be more receptive of the anatomic terms and relations he was having to crowd into his memory during his all-too-scant hours now allotted to these subjects.

They were dissecting the arm, for example. I believe that thirty years ago we used to spend a month at least on an extremity and indeed dissected it twice. But now the student is supposed to learn the anatomy of the arm and that very important portion of it, the hand, in a week's time! It was easy to find some examples of injuries affecting and modifying the structure and function of the hand in the hospital wards, and the students

were merely asked to tell what they saw, and to interpret its relation to the blood vessels, the nerves, and the muscles and bones they were exposing in the dissecting-room. I remember bringing in a patient afflicted with acromegaly and merely asking one of the students what was the outstanding feature of the man's hand, and it was impossible for him to say that the hand was "big." That was too simple.

In short, I do not believe that students can begin to think in terms of the patient too early in their course, nor too early begin to interpret and record what they can see, hear and touch—perhaps even smell and taste—at the bedside. And this brings me to the only practical suggestion I shall offer to this conference: namely, that some medical school with a sufficiently elastic curricular skin and some sufficiently enthusiastic clinical teachers capable of adjusting their instruction to the students' level begin each day of the week during the first two years with an hour's amphitheater clinic the purpose of which is twofold—first, to cultivate powers of clinical observation; second, to illustrate so far as possible on actual patients the things that are going to be taught from a different aspect later in the day in the laboratory courses.[1]

There is nothing new in this. Sporadic efforts in the same direction have been made from time to time in many places, without receiving general sanction as a principle, so far as I am aware, in the curriculum of any American school. It is a compromise, of course, between the system long in vogue in continental Europe, where the entering students are plunged immediately into the complicated problems of the bedside—a compromise between this system and our present one under which many preclinical teachers do not wish to have the students see clinical work of any sort, lest it blunt the edge of their interest while plodding through their preliminary courses.

For the five exceptional men, it makes no possible difference what particular methods of instruction are pursued, but for the ninety-five others who presumably are going to get their livelihood from practice this program will, I am sure, make better clinicians of them. Not only will the patient have been the central idea in their minds for a longer time, but they will set out, or enter their hospital year, not only with their five God-given senses more acute but, what is still more important, with a better training of their common sense at the bedside. And, aside from this, I fully believe that this method will be likely to arouse curiosity in a larger percentage of students and thereby incline them to carry to the laboratories problems which deserve study, making them at the same time far more patient with and receptive of the necessary instruction in the purely fundamental subjects.

This or any other modification of our accepted curriculum will, in the long run, only be worth while if there are the right people to carry it through, and if the principle is adhered to of having the more experienced clinical teachers the ones first to meet the students, for younger men are apt to shoot over their heads. And again I would like to emphasize that a proper teacher needs no particular formula, though he does need to have some limitation in the number of his pupils.

1. It would be far better for the sake of continuity if these clinical exercises could be conducted by some member of the science-department concerned, but they are no longer men with clinical training, and the suggestion that they should be, if put into effect, brings us back to the point we started from a generation ago.

In one of John Henry Newman's Historical Sketches, there is a passage which expresses this, in words far more picturesque than any I can summon: "An academical system," he said, "without the personal influence of teachers on pupils is an arctic winter, it will create an ice-bound, petrified, cast-iron university, and nothing else." And even when personal influence *is* allowed full play, the best any of us can do as a successful teacher of medical students once admitted, is to instil principles, arouse interest, put the student on the right track, give him methods, show him how to study, and early to discern between the essentials and the unessentials.

THE BUSINESS OF A UNIVERSITY MEDICAL SCHOOL *

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CHICAGO

The university medical school, like so many other parts of our educational system, is in the making. It is, as the ancient philosophers rightly said of the world, becoming. The forces that have brought it to the point which it has reached are many, but not least among them are the ideals consciously created by thinking men and more or less completely embodied in this or that school. The discussion of the function of the university medical school cannot therefore take the form of a description or photographic reproduction of an existing institution, but must rather be an attempt to define the goal toward which we are by conscious effort moving.

Speaking, then, from this point, I think we may safely say that the university medical school ought to represent the university ideal at its highest, and the spirit of the medical profession at its best.

And this, in turn, means that its inclusive ideals are research and service—not that the university stands for research and the medical school for service, but that both stand for both, perhaps the university emphasizing the thought of research more than the medical school traditionally has, and the medical school service more than the university historically has, but without emphasis on this difference of emphasis, both university and medical school standing for research and service.

To this definition of ideals, let it be added as taken for granted without discussion that the ultimate purpose of a medical school is to relieve human suffering, to increase the happiness and worthfulness of human life, promoting human health by curing or preventing disease. Let it be further affirmed as a proposition that calls for no discussion that the medical school aims at this result largely by the training of a medical profession. It is not simply a research institute, discovering facts, or simply an institute of public intelligence. Whatever it may do either in discovery or in imparting to the people at large knowledge about health and disease, it aims also and especially at the education of physicians.

But how are physicians to be educated? Is medical education mainly a matter of the imparting of information or of the development of an attitude and the equipment of a mind with intellectual tools? Does it send out physicians who, having completed their medical education, will thereafter employ the remedies and

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methods which their preceptors have taught them, or does it lay the foundations of an education on which the graduate will continue to build as long as he lives? China has for centuries had a medical profession but no medical schools. The practicing physician has passed on to his apprentice the rules he has learned from his predecessor. Farmers have been and still are educated in the same way. Until lately, at least, blacksmiths and carpenters have been made in the same way in this country. All these examples illustrate one method of education—the method of impartation. It is centuries old and still widely prevalent. Fifty years ago it was, I presume, almost the only method in use in this country in all education, from the elementary school to the professional school. It was a matter of give and take. The professor or the textbook did the giving, and the student did the taking.

In his recent volume entitled "Harvard Memories," President Eliot tells a story which would be almost incredible if it did not come to us on unimpeachable authority. For a curriculum which consisted of courses of lectures running through four months of the year and repeated year after year, it was proposed that there should be substituted a medical school in which the instruction should be progressive through each year of the course, and should run through nine months of each year, instead of through four only. It was further proposed that no candidate should obtain his degree unless he had passed a strict (written) examination on all of the chief departments of instruction, instead of five out of nine, as had previously been the requirement. The professor of surgery, who at that time had complete charge of the Medical School of Harvard University, went round to all the members of the board of overseers—he was a man of quick wit, picturesque language, and great personal influence—and told them that this young president was going to wreck the Harvard Medical School: it would cease to exist in a year or two, if his revolutionary reconstruction of the school were allowed. "He actually proposes," said this professor, "to have written examinatioins for the degree of doctor of medicine. I had to tell him that he knew nothing about the quality of Harvard medical students; more than half of them can barely write. Of course they can't pass written examinatons."

But the dogmatic method of instruction was of course not confined to New England. A man who graduated in medicine in this city as recently as within twenty-five years told me that one at least of his professors used to dictate his lectures, word for word, commas and semicolons included, and on examination demanded that the answers to his questions reproduce the exact language of the lecture, punctuation included. This method of teaching was, of course, not peculiar to medical schools. It was the common method of professional teaching. Thirty-five years ago I was one day expressing to the president of the school in which I then taught my indignation at some one who was doling out his opinions to his students and expecting them to accept them as a matter of course. His comment was, "Well, with the majority of students, is there anything better to do than to give them their message and expect them to go out and repeat it?" This is simply the method of the centuries, and is still the method in large areas of education.

But it is in fact also out of date and doomed to extinction. For at least fifty years it has been in process of displacement by another method, which I believe is destined eventually to affect profoundly our whole educational system. The force that is bringing about this change is simply the restoration of nature's own method and the systematization of a process that has always been going on in the world.

Let me explain what I mean by each of these statements; and first in respect to nature's method. Every normal child is a natural investigator. Lying in his cradle, he begins to acquire knowledge by observation. Long before he can read a printed page or ask a question or even understand vocal utterances, he discovers many things about the world in which he lives. He knows that food gives him comfort, and lack of it pain; that his mother's face comforts him, and the faces of children amuse him. By this process he discovers what certain sounds mean, and by a long series of experiments learns how to make sounds. Thus he acquires the elements of language, learning to understand it and to speak it. With this new tool he acquires access to the experience of others and adds rapidly to his store of knowledge, by drawing on the common stock of ideas in his environment. Entering on this stage he learns a great many things that are not so, as well as many that are. But the fact of importance for my present purpose is that personal discovery precedes the give and take of conversation, and that it goes on through life. In school, indeed, the child is usually subjected to a process of so-called education which threatens to displace nature's method of observation and interpretation. But, released from the schoolroom, every child is obliged to fall back in large part on nature's method. No school that was ever conducted furnishes its pupils with answers to any large part of life's questions. We are all compelled to resort to experience, to observe, to interpret, to formulate tentative conclusions, and try them out to see how they work, till we conquer our world, or break our lives against it.

A word on the other point—a process that has always been going on in the world—by which I mean discovery. What I have just said applies in a sense to this point also. Every man is a discoverer from childhood up. But I am thinking now of the discovery of things previously unknown, not only to the individual discoverer, but to the race. The world has always had its Galileos and its Christopher Columbuses, its Newtons and its Franklins, its Darwins and its Pasteurs—men whose curiosity has pushed them out to and beyond the frontier of human knowledge. And organized education has taken account of them, first by denial and opposition, often by persecution, then by acceptance, and finally by canonization and dogmatic reaffirmation.

The new thing of which I am speaking is the definite recognition of discovery as the method by which the world gets ahead, its definite acceptance by educators, and the definite incorporation of it into our system of education. The great historic discoveries have been simply exceptional instances achieved by men who have escaped the process of repression to which organized education endeavored to subject them.

Simple as the matter is, simply the open-eyed adoption of a method as old as human nature, and its incorporation into the processes of education from which it has been hitherto largely excluded by dogmatism—simple as the fact is, its importance can hardly be overstated. It is giving us a new education, a new morality, a new world.

For this world old process as thus definitely organized and recognized, we have adopted the word

research—a word that you will scarcely find in any book over 50 years old or in any college catalogue over 30 years old, but which is today the outstanding word in our educational vocabulary.

To the new spirit and point of view for which this word stands, we owe all that marvelous progress that has been made in medical science in the last half century. It is superfluous to give illustrations of this fact. It will be quite sufficient for me to name Pasteur, Koch, Claude Bernard, Ehrlich, Walter Reed, Lazear and Jacques Loeb.

The result of all these researches is that the practice of medicine has been transformed from a more or less rule of thumb administration of drugs into a rapidly developing art based on an incomplete but rapidly growing science.

What, then, does the fact that we have come thus far mean for the future of the university medical school? Fundamentally, as I have already said, it means that the university medical school of today ought, in its effort to develop a medical profession, to represent the university ideal at its highest, and the spirit of the medical profession at its best, combining the two great ideals of research and service. It demands that it shall stand for the discovery of all possible facts contributory to human health, and for the training of men who will not be mere repeaters of formulas or practicers of rules, but themselves investigators, accurate observers and keen interpreters. It means that, controlled by the ideal of service, and by the ambition for progress, the school will seek to train investigators and teachers and practitioners, all of whom will be controlled by the spirit of research and of service. In setting this as the standard for the university medical school, I am not meaning to say that any other medical school should have any other ideal. I mean only that the relationships and connections of a university medical school furnish to it an atmosphere and facilities that other schools are perhaps less likely to possess and which make more evident and imperative its duty to meet these high obligations.

But shall we be a little more specific?

IDEALS OF A UNIVERSITY MEDICAL SCHOOL

1. The day of the old "give and take" method of instruction in which the professor did all the giving and the student took what was given him—that day is gone, not to return. It may linger on in obscure corners of the educational world, just as the snow of winter remains in the deeper northern valleys when all of the rest of the world is green with the verdure of spring. But it is an anachronism that has no proper place in modern education, least of all in a science which is making the rapid progress that medicine is now making.

Certain facts the student must, of course, know. At every stage of education, the acquisition of the established and fundamental data is a necessary part of the process of education. The possession of them is necessary to the practice of research or of the art to which they pertain. But it is an utter waste of valuable time for the professor of medicine to spend the class-room hours in rehearsing these facts to the student or having the student recite them to him. There are textbooks from which they can be learned, and brief examinations will serve to discover whether the student has acquired them. The principal business of the teacher must be to see to it that under his guidance and inspiration the student acquires what no textbook can impart—the investigative attitude of mind, and actual ability in research.

The methods of doing this will, of course, vary in different subjects and even according to the genius of the individual instructor. The point I am emphasizing is that while education must include the acquisition of the inherited store of information on the subject under discussion, it must, especially in a subject which is at the stage which all departments of medicine have now reached, emphasize not less but more the investigative attitude of mind and the practical acquisition of the tools of research.

2. A second consequence of the progress which has been made in medicine and in our perception of the true nature of education is that the curriculum of a university medical school must include a much larger number of courses and subjects than any single student can be expected to take. I confess that I speak here without that exact knowledge of the field which would enable me to illustrate this assertion as forcibly as I might in some other realms of knowledge. Yet I feel sure I am right in thinking that on the one hand the subjects valuable for a physician to know, and necessary to be known by some physicians, are far beyond the possibility of any one student's acquiring them in a period which it is reasonable for him to spend in school; and on the other hand that a university school cannot afford so completely to misrepresent the present stage of medical science as would be done by confining the courses offered to a list which a student could cover in, let us say, four years. In another department of my own university with which I happen to be familiar, the number of major courses offered is about sixty. Of these, three are required for the professional degree, from six to twenty for the specialist degrees, and no student probably ever took more than thirty, very few over eighteen. I cannot think that the situation is utterly different in medicine. In short, the university medical school must undertake with a certain approach to completeness to reflect the present state of knowledge and of outlook in the field of medicine, with its windows always open toward the still unknown, and the student must be expected not to cover this whole field, or to acquire a complete medical education, but to begin a process of education which he will carry forward as long as he remains in the profession. It may probably be left to him, with some suggestions from the faculty, to see to it that he is prepared to meet the conditions imposed by the state law as a prerequisite to his becoming a licensed practitioner.

If it be urged that students cannot be expected to take more work or other work than that which the law requires, the answer is that experience shows the contrary. Of 111 students who completed their preclinical work and went on to the clinical courses in the University of Chicago last year, eighty-one had done more work than was required for this promotion. On the other hand, among students doing work in the preclinical departments, there were fourteen who had already received the M.D. degree and who had evidently therefore returned after achieving the professional degree to do further work in preclinical subjects, and there were four doctors of philosophy who apparently included in their preclinical work more than enough work to achieve the Ph.D. degree. With a curriculum organizied as suggested, the tendency to exceed the legal requirements in the interest of breadth and thorough-

ness of preparation would undoubtedly be still further accentuated.

3. The university medical school must make extensive provision for research on the part of professors and fellows. There is a twofold reason for this. First, the researches already made have yielded results of so great value that the continuance of research is imperatively demanded in the interest of the continuance of this process, and there is no place so favorable for the conduct of research as the school of a university, to which research is the very breath of life. But, in the second place, the prosecution of research is necessary to give to the school its proper educational atmosphere. The student must do all his work in an air charged with the spirit of research.

Nor can such research be limited to that which promises to yield results immediately available for teaching or practice. No one can tell which will prosper, this or that. The university must not simply tolerate investigations which have no immediate goal in sight except the increase of knowledge, and which may not for years make definite contribution to medical science and the improvement of medical practice; it must encourage them and create an atmosphere in which they will flourish.

I am sure that I do not need here to elaborate or urge this point. All are familiar with the numerous instances in which research prosecuted from sheer interest in the enlargement of the field of knowledge has in the end proved to be of inestimable practical value. Research cannot be successfully prosecuted as one builds a house, by contract calling for a specific result at a given date with penalties imposed for delay. It must breathe the atmosphere of freedom and adventure. Seeking an ultimate fact of chemistry, one may find an effective remedy for disease.

Even the great manufacturing corporations have recognized this principle, and freely appropriate large sums of money for research without prescribing the problem or the period to be spent in studying it. Even more necessarily must the university do so. It is built on the faith that all knowledge is worth seeking and will eventually be to the advantage of humanity, whether by sheer enlargement of its intellectual horizon, as is largely the case with astronomical researches, or by some practical alleviation of pain or shortening of the day's labor. This faith of the university the university medical school must share and exemplify.

4. The university medical school should be such not in name only, but in fact, and as such recognize itself as an integral part of the university. A university is not properly an assemblage of unrelated schools, each living its own separate life, but a group of schools, each conscious of its relationship to all the rest and participating in the life of the community as a whole. That a university medical school will find advantage in an intimate relation between the clinical and the preclinical departments and between both these on the one side, and those of physics and chemistry on the other, is so self evident as barely to require mention. Nor need one spend any time in proving that physical contiguity is itself conducive to such intimacy of intellectual relationship. The fact on which for the moment I wish to lay stress is the desirability that the members of the faculty of the university medical school shall take a conscious and active share in the common life and thinking of the whole university community. They have their contribution to make to that life. There are advantages to them to be gained from participation in it. The physician, like the lawyer and the minister, is not simply a practicer of a profession, but a citizen of the nation and of the world. Contact with the members of other faculties is a matter of mutual advantage, a give and take by which both giver and receiver will profit.

5. The university medical school must always keep in view its ultimate purpose to serve humanity. It must be scientific, but its science must be for men, its ultimate aim the benefit of mankind. It must have laboratories for scientific investigations in every subject that pertains to normal physical life and to pathologic conditions. But it must also have hospitals, and in such hospitals the patient must be not an impersonal subject of experimentation but a human being to be restored to health. This concern for the patient is demanded not in the name of humaneness only but in the interest of the art and science of medicine itself. For by their very nature they are concerned to conserve life, and to train their students to the habitual recognition of the welfare of men as the only justifying aim of their profession.

6. The university medical school must stand not only for accurate observation but for clear and accurate thinking as well. Perhaps the inclusion of this statement at this point and to this audience is an impertinence. But knowing from contact with other fields of thought how essential clearness of thought is, I venture to mention it even in respect to a field with which I have little personal knowledge. Accumulation of data by accurate observation, correlation of these data with the previously known facts—these things are necessary in every field. But not less necessary is the interpretation of these facts, by which they become not simple data but knowledge. In every field this calls for imagination, by which one frames hypotheses to account for the data, not one but as a rule several, and the trying of them out by competitive process; clear discrimination between facts and hypotheses, and between hypotheses that have as yet been subjected to no severe process of competition and criticism, and hence are only hypotheses, and those which, though still hypotheses, have weathered the storm of much criticism and are entitled to be taken as, for the time being at least, the bases of further thinking and of action. To such clear thinking a knowledge of the history of science is very conducive. For by such knowledge one comes to understand how we have arrived at our present stage of knowledge and thought, and what the processes are by which further progress is to be made.

7. The modern university school must be richly endowed. Hospitals, laboratories, research, competent instruction, all involve heavy expense. We have moved a long distance from the days in which a group of physicians could supplement their income from practice by conducting a medical school for pecuniary profit. In the university school of today, in any thoroughly scientific medical school, tuition fees of students can provide but a small part of the necessary expense of maintenance, to say nothing of the capital expense for buildings and equipment. A medical school equipped and maintained according to the ideals I have been trying to set forth calls for a capital investment of not less than ten million dollars, and double or treble that sum is not too much if the school is to include in its scope all the specialties of medicine and surgery. Such resources are possible only to institutions supported

either by the state or by the generous gifts of public spirited men of wealth. Fortunately there exists in America such a recognition of the value of the scientific school of medicine, and so large a number of men and women of means who are disposed to return to society in voluntary gifts the profits of the business in which they have engaged, as together give us hope that we may reasonably expect to see the wonderful advance of the last forty years from the state of affairs described by President Eliot to that which is now to be seen in several American universities, followed by another period of not less remarkable progress. Both you who have helped to bring about the progress of the last half century and you who are to take part in that of coming days have my hearty congratulations.

PRACTICABILITY OF THESE IDEALS

It remains, however, to ask one question: Are these principles and theories workable? Most at least of them are simply general principles which, with slight change of terminology, might be applied to any field of professional study. But it has frequently been stated, in particular by practitioners of medicine, but also by some teachers of medicine, that the adoption of them will serve to train investigators and teachers, but not practitioners. Indeed, it is claimed by some that the method will render students unfit for practice.

If I venture to discuss this phase of the matter, I do so only because of its immediate practical bearing on the policy of the university medical school; and in doing so I must confess that I am, even more than in the previous parts of this paper, dependent for facts and advice on my medical colleagues and friends. How, then, does the case stand?

To the views here set forth it will be objected, in the first place, that the method will not prepare students for the state board examinations which will entitle them to engage in the practice of medicine. It must, I think, be conceded that the university school of medicine can take cognizance of this objection only so far as the state board examination is a real test of the fitness of the applicant to practice medicine. The university school of medicine cannot constitute itself a mere quiz class, conceived and carried out with the purpose of helping the student to arrange his facts in order, in anticipation of his needing them for an examination of stereotyped form. But it does not follow that the graduate of the university medical school will not be prepared to pass the state board examinations. For in the first place, if he has received that measure of education which the university medical school ought to give him, he will be able to look after this matter for himself, and, secondly and fortunately, the state boards themselves are now tending toward a very enlightened attitude on this subject, and the old formal written examination is being rapidly supplemented by oral and practical examinations which test the applicant's ability to deal with the problems which he must face in practice.

A second objection needs more careful examination. Will the teaching of medicine, by the methods common to the other sciences, that is, with emphasis on problems rather than on information, and the attempt to stimulate a desire to know and to investigate, help or hinder a physician in his practice?

To answer this question let it first of all be remembered that the chief function of the physician is that of meeting the problems of disease, whether these problems be physical, mental, moral or social. I am not a physician, but I believe I am well informed when I state that no two cases of a given disease are ever exactly alike. Through the experience of our predecessors, and through the results of investigations, we have arrived at certain generalizations with respect to disease, and with respect to various diseases in particular. But does any individual patient ever offer the same picture to the clinician? Is not each patient, in the strictest sense of the word, a new problem to his physician? If that be so, and I do not see how it can be otherwise, then the physician is himself an investigator, and applies the methods of investigation to the problems which present themselves to him. The art of the practice of medicine would then seem to be identical with the art of investigation, for investigation is also an art, and the educational approach to the training of the investigator and of the practitioner would be identical.

In fact, the assumption that the university school of medicine will not concern itself with the training of practitioners is itself without warrant. If we use the word training in its narrow sense, to denote the impartation by rote of the technic required in practice, a technic to which nothing is to be added by observation, experience, investigation or reading, in no way surpassing an unintelligent training of artisans, the assumption is probably correct. It is inconceivable that the real university school of medicine can have such training as its aim. What it will attempt is education, with all that it implies, and training only as an element of education. Nor will it any more attempt to train investigators and teachers than it will to train practitioners. It will offer such facilities as it can, in the way of teachers, patients, laboratories and intellectual stimulus, and it will endeavor to its utmost to enable students to educate themselves in medicine. In the broadest sense one does not teach, one simply points out the ways in which learning may be acquired.

Such facilities and such assistance and encouragement will be offered alike to those who wish to engage in the practice of medicine and to those who may later become investigators or teachers. The university is not in a position to discriminate between these two types of service. Both are of the highest importance to humanity. My thesis is that the same type of education is adapted to the two, since the problems that they are to meet are fundamentally the same.

I return, then, in closing, to the proposition that I laid down in the beginning, that the university medical school should stand for the university ideal at its highest and the spirit of the medical profession at its best. This will mean not only that it will impart to its students that body of knowledge which is the requisite basis for the practice or teaching of medicine, but also that it will aim to make them skilled observers and investigators, who, animated with the spirit of service which has long been a characteristic of the profession, will bring to all the problems of that profession their highest skill in the investigation, prevention, cure and extirpation of disease, and in the promotion of public health.

Hypofunction Needs Hormones.—Successful treatment of the symptoms of hypofunction of an organ by extracts of said organ requires that the essential function of the organ consist in producing a substance or substances in the nature of hormones. The hormone or hormones must be stored up in active form and in some quantity in the organ producing them for successful organotherapy of this organ.—Carlson, A. J.: *Proc. Inst. Med. Chicago* **4**:198, 1923.

NONPARASITIC CYSTS OF THE SPLEEN *

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The opportunity to observe, clinically, a patient with a cyst of the spleen, and to make a study of that organ following splenectomy, seems to justify a report of the data accumulated concerning this condition, in view of its infrequency and of the inchoate state of knowledge regarding this type of lesion.

The literature on the subject of cysts of the spleen is comparatively meager, but not altogether as a result of the rarity of the condition. It appears to have been studied to some extent during the latter part of the last century, but it was not until 1904, when the spleen became an organ of surgical concern, that the interest in the subject was given an impetus and case reports began to accumulate. Extensive studies especially directed toward determining the pathogenesis of cysts in this organ have been made. In this country, the work of R. H. Fowler [1] is noteworthy, and it is largely from his papers that the material in this discussion has been culled.

In 1912, Fowler analyzed all available cases both from the reports of necropsies and from surgical clinics. At this time he was able to compile eighty-six cases of nonparasitic cysts, which he subjected to critical analysis. Of these, twenty-eight were discovered at necropsy. In eleven the diagnosis was made by trocar. In 1921, he was able to add four cases to the series, bringing the total to ninety recorded cases of nonparasitic cysts of the spleen. More recently, Lombard and Dubouchet [2] have compiled from the literature 158 cases of encysted hematomas.

Nearly all writers on the subject have attempted a classification of splenic cysts. There is practically a unanimity of opinion as to the following broad subdivisions: (1) dermoid cysts; (2) parasitic cysts; (3) nonparasitic cysts. Dermoid cysts are exceedingly rare anomalies, only two cases ever having been described. Parasitic cysts are almost always due to the echinococcus, and are not uncommon where hydatid disease prevails. Consideration of these is not germane to this discussion, which is confined to nonparasitic cysts.

In the further attempt to classify those cysts which are nonparasitic, divergence of opinion becomes evident. The difficulty in grouping them lies in the obscurity of their etiology. The best classification is the one given by Fowler:

True cysts:

1. Infoliation cysts.
   Inclusions of peritoneum, inflammatory or traumatic, small, multiple, superficial or deep.
2. Dilatation cysts.
   Ectasia of splenic sinuses, multiple.
3. Neoplastic types.
   Lymphangioma and hemangioma.

Pseudocysts:

1. Traumatic cysts.
   These may arise from a hematoma. According to their contents they are called hemorrhagic or serous. They are usually large and unilocular.

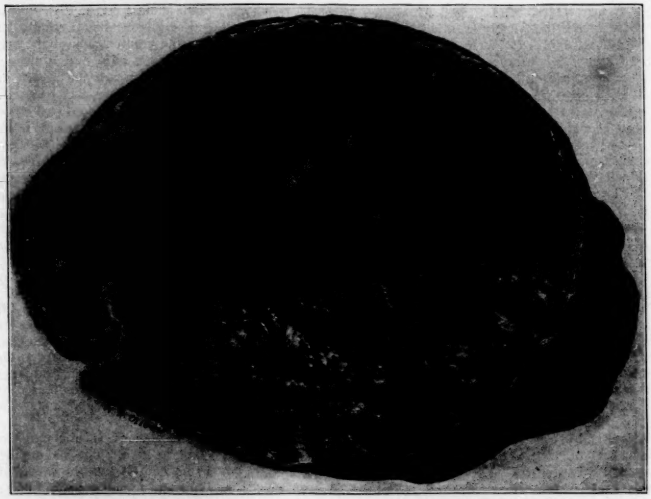

Fig. 1.—One half of the interior of the cyst: The inner surface is rough and irregular from the adherence to it of necrotic tissue containing large amounts of cholesterin; areas of erosion, which include nearly the whole thickness of the wall, are scattered over one side; what remains of splenic tissue constitutes the outermost covering of the structure, and is thickest at the hilum; the tear in the wall shows the point at which the cyst was so adherent to the diaphragm that a portion required being left in situ; × ½.

2. Degeneration cysts.
   These arise from secondary changes in infarcted areas, from arterial degeneration or occlusion of blood vessels by emboli with consequent necrosis of splenic pulp. These are usually solitary and large.

Fowler believes that the division of these cysts into two groups makes for a clearer conception of the nature of the cysts under each heading, since they constitute two rather distinct types of lesion. The designation pseudo, however, is unfortunate, since the lesions included under this title are no less actually cysts by definition than those grouped under the heading true cysts.

ETIOLOGY AND INCIDENCE

A splenic cyst may occur at any age. It is commonest during middle adult life between the ages of 30 and 50. Women are predisposed, and a relation to

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1. Fowler, R. H.: Non-Parasitic Cysts of the Spleen, Surg., Gynec. & Obst. **11**: 133 (Aug.) 1910; Cysts of the Spleen, Ann. Surg. **57**: 658-690, 1913; Surgery of Cysts of the Spleen, ibid. **74**: 20 (July) 1921; Surgery of the Spleen, New York State J. Med. **22**: 407-415 (Sept.) 1922.
2. Lombard, P., and Dubouchet, H.: Les hématomes Enkystés de la rate, J. de chir. **20**: 464 (Nov.) 1922.

pregnancy seems to exist, the majority of cases occurring during the child-bearing age. Antecedent disease states, especially malaria and syphilis when associated with splenomegaly, seem to be of importance in the pathogenesis of some cases. All these, however, are secondary or predisposing causes and play only minor contributing roles.

Trauma is generally conceded to be of great significance in the formation of single large unilocular cysts of hemorrhagic or serous type. In thirteen cases reported, the cyst developed within one year or less; in seven, within ten years or less; in one case not until forty years following the accident. It would seem difficult in the last instance to determine the etiologic importance of the injury.

Twisted pedicle, disease of intrasplenic blood vessels, and embolism or thrombosis are stated as possible causes.

REPORT OF CASE

History.—Mrs. M. L., aged 45, white, American, a housewife, entered the Albany Hospital in the service of Dr. John A. Sampson, March, 1923. Her chief complaint at that time was of a tumor in the upper left quadrant of the abdomen which gave her a sensation of pressure anteriorly on the left side.

The patient's general health in the past had been good. She said that she had an attack of malaria at 7 years of age, but remembered having none of the usual diseases of childhood. Since puberty, she had had, at varying intervals, severe headaches, and during the last two years had experienced occasional attacks of vertigo of increasing severity.

The present illness began in 1913, when the patient first noticed a small lump in the left side of the epigastrium. There was no associated discomfort. The mass was not movable. It gradually increased in size until about 1916, when it had reached such proportions that she began to experience a feeling of pressure and a sense of fatigue. Moderate exertion gave her an aching in the middle of the back. She was treated by an osteopath for a year. In 1917, a physician prescribed and administered roentgen-ray treatments, and gave her a series of six intravenous injections of unknown nature. This treatment was continued over a period of three years with no improvement. The tumor continued to grow and the backache became continuous. About this time her physician told her that she had high blood pressure.

In June, 1922, a panhysterectomy was performed for prolonged and profuse menstruation. The uterus showed multiple leiomyomas, and there was hyperplasia of the endometrium. At this operation a "greatly enlarged and probably cystic spleen" was observed.

In July, 1922, the patient entered the Albany Hospital, in the medical service under Dr. Thomas Ordway, and was given radium treatment. The area of splenic dulness was divided into four areas, to each of which 100 mg. of radium was applied over a period of four hours. A month later the treatment was repeated. This time 100 mg. was applied to seven areas over a period of five hours each. Her condition on discharge was noted as improved. She was again readmitted in September of the same year, when an aspirating needle was inserted in the left hypochondrium, and about 3 liters of a chocolate colored fluid was removed. Examination of this fluid showed a small amount of fresh blood and much blood pigment. Microscopically, there were numerous "granular" and endothelial cells and cholesterin crystals. On standing, there developed a thick layer of cholesterin crystals on the surface. There was no evidence of any parasites.

The physical examination on the last admission revealed a tumor filling the entire upper left abdominal quadrant, extending to the right, slightly beyond the midline, and inferiorly to just below the level of the umbilicus. On palpation, the tumor was slightly irregular in outline, immovable, and seemed fluctuant. The blood pressure was 238 systolic, and 124 diastolic. The blood Wassermann reaction was negative. The urine showed some albumin, and casts were present in small numbers.

Operation was performed by Dr. Sampson, April 2, 1923. The abdomen was opened through a left rectus incision. A greatly enlarged spleen filled the upper part of the abdominal cavity. It was so densely adherent at the upper pole that it could not be delivered. The pedicle was exposed and the individual vessels were ligated separately, each with two catgut sutures, and the vessels were cut between. The contents of the cyst were then partially aspirated to facilitate removal of the organ. There were adhesions to the diaphragm so dense that a portion of the cyst wall had to be left in situ. There was no twisting of the organ on its pedicle.

About twelve hours after operation the patient developed generalized convulsions lasting several minutes, followed by paresis of the left side of the body. This completely disappeared in a few days. Following this attack the urine showed traces of sugar, acetone, and diacetic acid for a period of over two weeks. Otherwise the recovery was uneventful, and five months after operation she had remained well.

Pathologic Report.—The spleen appeared as an irregularly ovoid structure which might, roughly, be compared to a partially collapsed football in size and shape. A portion of its wall about 5 cm. in diameter on the diaphragmatic surface was missing, revealing a single large cavity which constituted by far the greater bulk of the organ, the enveloping tissues forming for the most part a mere shell. Much of the contents had escaped through the breach in the wall, so that the structure was somewhat reduced in size. Its measurements were 24 by 17 by 13 cm. It consisted essentially of a thick, fibrous envelop covered in part by splenic tissue, and was filled with dark fluid.

The liquid capacity of the cyst was about 2,000 c.c. The fluid recovered might be likened to thin, dark brown gravy. It contained large amounts of cholesterin and blood pigment. In every respect it was very similar to the fluid removed by aspiration in September, 1922.

The fibrous envelop varied in thickness from an average of 3 mm., where it was very dense, almost cartilaginous in places, to translucent patches the thickness of heavy paper. Viewed from the interior, the wall had a very rough and irregular surface. This was caused for the most part by the adherence to the wall of soft and very friable material having a fretted surface. This material was easily scraped off with the blade of a knife, and on its removal there was left a fairly smooth surface. At irregular intervals there occurred sharply delimited areas of erosion, the largest being about 3 cm. in diameter. In these depressions coarse strands of connective tissue formed a trabecular net. The wall was thinnest at these places.

The bulk of splenic tissue occurred at the hilum, where it constituted a ridge having a maximum thickness of 3 cm. From here it tapered rather abruptly, extending in all directions and forming a thin outer covering for a great part of the structure, but leaving a large area of the subjacent sac uncovered.

A short stump containing some of the larger branches of the splenic artery was found near one pole, which represented the hilum of the organ. The walls of the arteries were much thickened. Sections at various levels revealed an almost complete obliteration of the largest vessel by what appeared superficially to be organized thrombus. This apparent occlusion became more and more marked as the artery was followed distally, and it could be seen that the lumen was only a tiny, semicircular slit. This defect could be seen up to the point at which the artery branched.

In microscopic sections this artery presented a peculiar picture: one half of the artery wall was completely invaginated into the other half, the intimal surfaces being closely apposed, so that the lumen had a crescent shape and was greatly reduced. At the angles of this crescentic shaped lumen where the endothelial contact was most intimate, the intimal surfaces had fused together showing that the process was not a new one, which indicated that some torsion of the vessel had occurred before the operation. The branches of the artery showed thickening of the subintimal connective tissue as well as of the intima.

The stroma of the splenic tissue was more abundant than normal, and there was a rather striking concentration of the

trabeculae. The most marked changes were in the arteries. The lumina of many large arteries were completely obliterated. Other vessels large and small showed various stages of obliterating endarteritis.

The cyst wall consisted for the most part of a thin layer of splenic tissue about 1.5 mm. in thickness, placed between the splenic capsule on the outside, and an inner layer of amorphous, pink-staining material. The innermost two layers contained numerous cholesterin crystals. A small portion of the tail of the pancreas adjacent to the cyst was removed of necessity with it. Sections of this tissue showed an increase of the interlobular connective tissue; otherwise it was quite normal, the blood vessel lesions so ubiquitous in the spleen being nowhere seen.

COMMENT

Concerning the pathogenesis of cysts of this type, little can be stated definitely. In thirty-four of the forty-four cases that showed evidence of hemorrhage in the series reported by Fowler, nineteen probably resulted from trauma, five from disintegration (two from infarction and three from arterial degeneration). Eight were cysts into which secondary hemorrhage had occurred (four serous and four lymphatic), and two were regarded as neoplasms (angiomas). Rupture of blood vessels, spontaneous or traumatic, figures most conspicuously. Spontaneous rupture of diseased blood vessels and hemorrhagic infarction are more rarely the factors concerned.

In this series, nineteen were stated to be subcapsular hematomas, mostly large, single and unilocular. Evidence of recent or active hemorrhage was rare. The contents varied with the age of the cyst, being coagulated or fluid, black or brown, usually later becoming thin, clear fluid. Disintegration cysts into which hemorrhage had occurred often presented necrotic walls. Hematoidin and cholesterin crystals were usually present in the old cysts. These characteristics were said to be true also of intraparenchymatous cysts arising from degeneration.

The history of the case under discussion offers little, if any, great probable significance in determining the mode of origin of the cyst, and any attempt to determine the pathogenesis of this cyst from the facts of the history alone must be entirely a matter of conjecture. Granting that the malaria in childhood is a fact, it cannot be said with the least degree of certainty to have been the cause of the splenic cyst first noticed some twenty-eight years later. It is, of course, possible that splenomegaly may have persisted for many years following the infection; still, this would account only for an enlargement that would render it prone to injury and, possibly, to cyst formation. Trauma is generally conceded to be of great significance in the etiology of non-parasitic cysts. The patient, however, is absolutely unable to recall any injury of even a trivial nature which might have acted as an excitant, and she had never been employed in any manner to expose herself to undue strain or exertion. The occurrence of embolism accompanying or following the single pregnancy twenty-four years ago is a possibility which cannot be wholly ignored. In either of these instances the cyst must have been potential, latent, or very slowly progressing up to ten or twelve years ago, when a sudden impetus to growth might have occurred with relatively rapid increase in size. Another fact of possible significance in the history is the elevated blood pressure, which suggests a vascular lesion as a possible common cause both of the cyst and of the hypertension. While it is true that the hypertension of 240 systolic may be entirely an epiphenomenon, it is possible that the arterial changes in the spleen are those which are so frequently seen accompanying an increase in arterial tension. Selective localization of arterial degeneration is a well established fact, and working on such an hypothesis in this case, the arteries of the spleen may have been especially predisposed, exhibiting early degenerative changes which led to spontaneous rupture of an intrasplenic artery. The patient's age (the enlargement in the left side was first noticed when the patient was about 34, and it must have been growing for at least a few years previous to its discovery), the lack of any evidence of syphilitic infection, and the absence of any other signs of diseased blood vessels, all militate against this opinion.

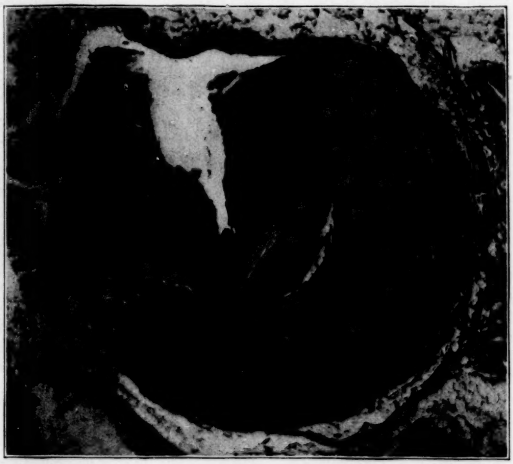

Fig. 2.—Section of occluded branch of splenic artery, showing the healing together of the intimal surfaces, the almost complete occlusion of the lumen, and the splitting of the elastica interna; the break above in the section is an artefact (Verhoeff's elastic tissue stain).

Aside from the cyst itself, the most striking pathologic change is in the blood vessels. The microscopic picture given by the large branch of the splenic artery strongly suggests that there had occurred at some time a twisting or kinking, which might conceivably have been induced by pressure and distortion from an enlarged spleen. Dr. Sampson is certain that at operation the splenic artery and vein were in their usual anatomic relation. Each of the larger branches of the splenic artery supplies chiefly that region of the organ in which the branch ramifies, having no anastomosis with the majority of the other branches. Almost complete obliteration of a large branch of the splenic artery was present in this case. With these facts established, it is not difficult to conceive of an infarction of that portion of the spleen supplied by the offending branch,

with consequent necrosis, autolysis and liquefaction of the anemic tissues. The cyst thus formed, increase in size would follow from seepage of blood and lymph into the infarcted area from the surrounding tissues. The difficulty lies in assigning a cause to the peculiarly stenosed condition of the artery. It is conceivable that one of the six primary branches of the splenic artery by reason of a developmental anomaly might have grown to a greater length than the remaining branches, imitating in this respect the remarkable length and tortuosity of the parent trunk. Because of its redundance, such an artery would probably be greatly distorted, and might, as a consequence, be subject to some slight trauma, which would fall chiefly on the intimal coat of the vessel where opposing surfaces tended to approach. This would occur at points where the artery was sharply bent or kinked, and might lead subsequently to fusion of the apposed surfaces.

It is suggested that the exposure of the area of splenic enlargement to roentgen rays, beginning in 1917, may have converted a splenic tumor into a cyst by necrosis and liquefaction of the tissues. There is no evidence in favor of such an assumption. The history indicates that the enlargement of the tumor continued during and after treatment at about the same rate and in a similar manner to what it had previously. Application of radium was not made until after the spleen had been observed to be cystic at operation.

SUMMARY

The case reported is one of a nonparasitic degenerative cyst of the spleen.

The cyst was single, large and unilocular, replacing all but a small portion of the splenic tissue. It contained about 3 liters of thin, dark fluid in which there were large amounts of blood pigment and cholesterin crystals.

Anatomic study of the specimen showed that there was an occlusion of one of the main divisions of the splenic artery. This was probably the immediate cause of the cyst, which developed as a result of necrosis of the splenic infarct. The cause of the occlusion of the artery was not apparent. That it was not a recent one is proved by the fact that the apposed intimal surfaces of the vessel were healed together.

The patient was of the age at which the majority of these cysts occur, and was of the sex which appears to be predisposed to the condition. She was delivered of a child twenty-four years ago, or about fifteen years previous to the first symptoms to which the cyst gave rise. She had been the subject of increased arterial tension for at least eight years. She had malaria at the age of 7 years.

The condition was successfully treated by splenectomy.

Household Electricity.—The ministry of education of Vienna, Austria, has issued an order requiring teachers in the public schools to instruct children about the dangers of household electricity.

SYPHILITIC BURSITIS

(LUETIC BURSOPATHY OF VERNEUIL)

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CASE 1.—Mrs. J. L., German, housewife, aged 50, was admitted to the surgical service of the New Haven Hospital, March 7, 1921, for a swelling of the knees (Fig. 1). The pertinent points in her history were: Her husband had syphilis seven years before. Five years before she had an ulcerated throat, ulcerations on the arms, and headaches; two years later, she had ulcerations on the legs.

The significant findings in the physical examination were: The pupils were unequal, the left being the smaller, with an irregular and adherent pupil. The retinas showed exudative retinitis. There were numerous small ulcerations on the legs, together with pigmented spots of previous similar lesions. On the arms there were also round, brownish scars. Each knee presented a tumor directly over the patella; the tumor on the right knee was the size of a lemon, adherent to the patella, and the skin was normal over it. It showed a slight fluctuation and it was not tender. The tumor on the left knee was the size of an orange, adherent to the patella, and the skin was discolored. On its top was an irregular, dirty, discharging ulceration a little larger than a half dollar. The Wassermann reaction, March 8, was four plus. March 10, the Wassermann reaction of the spinal fluid was positive. The diagnosis of syphilis was clinically apparent and had been made at once.

Fig. 1 (Case 1).—Bilateral syphilitic prepatellar bursitis.

March 12, I was asked to see the patient by Dr. S. C. Harvey. The condition was as described above, except that the ulcerated skin over the tumor of the left knee had sloughed off, disclosing the contents of the prepatellar bursa, which was a gelatinous mass of somewhat honeycombed appearance. The diagnosis was bilateral syphilitic prepatellar bursitis. Arsphenamin was given with some improvement at first, but later the slow healing justified the surgical advice of excision of the bursae. This was done, April 9. The right bursa was excised, and the wound healed by primary union. The left bursa was excised, and the wound was packed. It healed rapidly, and when the patient was referred to the dispensary for further treatment, April 28, there was only a small granulating area left.

CASE 2.—A. P., a man, aged 49, Hungarian, married, was referred to me, Sept. 8, 1923, by Dr. J. D. McGaughey of Wallingford, for some ulcerations around the right elbow (Fig. 2). The only thing in the patient's history or that of his family suggesting syphilis was the story of the ulcerations. He had received a blow on the right elbow two years before. Within two or three days, a swelling began to appear on the elbow. In the course of the next few weeks it gradually grew larger until it was about half the size of an egg, when it broke through the skin and began to discharge. A diagnosis of bursitis had been made before it broke down. From that time on, other ulcerations appeared in the vicinity, some persisting for a long time, new ones appearing as some of the older ones slowly and spontaneously healed.

Physical examination disclosed nothing except the conditions found on the right forearm. An irregular area on the forearm, extending about 4 inches from the olecranon and about 2½ inches wide at the top, was red, covered with numerous

unhealed and partially healed, nearly round ulcerations, and with scars of similar shape. The individual lesions varied from half an inch to an inch in diameter. The largest ulceration was directly over the olecranon, and was probably the lesion due to the rupture of the bursa, though at that time no bursa could be definitely distinguished. Along the forearm were three subcutaneous nodules; the largest, about 2 inches below the elbow on the ulnar side, was about the size of a hickory nut. The smallest was half way down the forearm. These nodules were not tender, but were very hard.

The Wassermann reaction was later reported four plus.

The diagnosis was: gummatous syphilitic olecranon bursitis; multiple syphilitic gummas and fibroid subcutaneous syphilomas. The latter interesting and unusual manifestation of syphilis has recently been studied by Goodman and by Howard Fox, and no further reference to it can be made here.

The patient was placed on antisyphilitic treatment, with immediate improvement, and the lesions were completely healed in about eight weeks.

Fig. 2 (Case 2).—Syphilitic gummas surrounding old olecranon syphilitic bursitis; the slight bulging on the inner side of the forearm is due to a fibroid subcutaneous syphiloma.

These two cases are typical examples of syphilitic bursitis described by Verneuil [1] in 1868 and in 1873. Churchman,[2] in 1909, reported a case of his own and compiled twenty-six cases from the literature. He gave the name "luetic bursopathy of Verneuil" to the condition.

I have found one case briefly reported by Barnard,[3] apparently not discovered by Churchman, in which the subpatellar bursa was involved. Since his article, Scott [4] has reported a case of bilateral prepatellar bursitis, and Coues [5] one of unilateral olecranon bursitis in a congenital syphilitic patient, the first case, I believe, to be reported in a congenital syphilitic patient. Harttung [6] cited a case of acromial bursitis seen at the bottom of an ulcerating gumma of the shoulder. Goodman [7] reported a case with double acromial bursitis associated with fibroid subcutaneous syphilomas. Thus, the total number of cases reported to date is thirty-four.

It is extremely improbable that syphilitic bursitis is as rare as these figures seem to indicate. It is much more probable that often syphilis is not thought of in connection with bursitis. In this condition, as in extragenital chancre, the diagnosis might perhaps be made oftener if the possibility of syphilis was thought of earlier and oftener. In 1909, Churchman said, "It is striking that even in extensive articles on bursal affections, no mention at all is made of luetic bursitis." Now, fifteen years later, the statement need hardly be changed, for in the current American treatises on surgery and on orthopedic surgery only a few instances are to be found in which syphilis is even mentioned as a possible cause of bursitis. And in such of the numerous recent articles on acromial and subdeltoid bursitis as I have happened to see, syphilis has not been sufficiently investigated as a possible cause. It is entirely unnecessary to give any description of the varieties of this affection, as that has been done by Churchman.[2]

The usual course of syphilitic bursitis and its delayed diagnosis is illustrated by the two cases here reported, and in the following brief report of Petit's observation.[8]

M. P., a man, aged 34, had had a small tumor of the olecranon for eight years. At first "having no discomfort, he paid no attention to it. Gradually, however, it increased in size, became painful; there was edema in the vicinity; then the patient, fifteen days before his entrance to the hospital, consulted a physician, who, finding fluctuation, made an incision; pus mixed with blood came out; the swelling diminished; but the wound, instead of cicatrizing, ulcerated."

The course of bursitis in a case diagnosed early and treated properly is thus described by Verneuil: [9]

Syphilitic hygroma: X, aged 48, a compositor, came to consult me in July, 1872, for a tumor on the posterior surface of the left elbow. It is a perfectly characteristic hygroma, which appeared without any appreciable cause about a week ago, as large as half a hen's egg, indolent, insensible to pressure. The patient complains of a slight sore throat and a sensation of general fatigue. I discover with no difficulty the signs of a secondary syphilitic angina, and on the skin traces of a disappearing roseola. The penis still shows the induration of an infecting chancre which has been cicatrized for a month.

I diagnose a specific hygroma. I prescribe mercurial treatment without busying myself with the serous swelling. The patient comes to see me again on August 26, after a month of treatment. The hygroma has disappeared; in its place there remains only a slight thickening of the skin.

I close by quoting the conclusions given in Moreau's thesis, bracketing my own additions.

1. Syphilis seems to be able to invade all the tissues and to invade them at all ages.

2. The subcutaneous bursae and those of the tendons present not only manifestations of secondary but also of tertiary [and of congenital] syphilis.

1. Verneuil, A.: Hygroma du dos de la main dans la syphilis secondaire, Gaz. hebd. de méd. **5**: 609, 1868; Lésions syphilitiques tertiaires des bourses séreuses souscutanées et tendineuses — hydrarthroses tertiares, ibid. **10**: 22, 1873.

2. Churchman, J. W.: Luetic Bursopathy of Verneuil, Am. J. M. Sc. **138**: 371, 1909.

3. Barnard, H. L.: A Clinical Demonstration, Clin. J. **23**: 188, 1903-1904; one of the cases was a syphilitic bursitis of the subpatellar bursa.

4. Scott, R. W.: Syphilitic Bursitis, with Report of a Case, Am. J. M. Sc. **151**: 386 (March) 1916.

5. Coues, W. P.: Luetic Bursopathy of Verneuil: Report of a Case of the Congenital Type, Boston M. & S. J. **173**: 18, 1915.

6. Harttung, W.: Syphilis der Schleimbeutel und Sehnenscheiden, in Finger, Jadassohn, Ehrmann and Gross **3**, Part 1, p. 751, 1913.

7. Goodman, Herman: Fibroid Subcutaneous Bursitis: Report of a Case Associated with Syphilitic Bursitis, Am. J. Syph. **6**: 687 (Oct.) 1922.

8. Petit, cited by Moreau, L.: Affections syphilitiques tertiaires des bourses séreuses, Thèse de Paris, 1873, No. 360.

9. Verneuil (Footnote 1, second reference).

3. These are recognizable by three sorts of signs, namely: (*a*) antecedents and concomitant accidents; (*b*) intrinsic characteristics; (*c*) prompt efficiency of specific treatment; [(*d*) Wassermann reaction].

4. Only the presence of several signs permits a positive diagnosis.

5. In case of doubt one may, one even ought, to test specific treatment; incapable of doing serious damage, it may aid much, and furthermore there is hardly any other way.

6. [Gives the accepted antisyphilitic treatment of the time. Substitute that of today.]

7. The application of this treatment leads to rapid improvement and a prompt cure [except in some old cases with considerable destruction of tissue, in which surgery may to advantage be combined with it].

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THROMBOSIS OF THE AXILLARY VEIN

AN ANATOMIC STUDY *

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The occurrence of an acute thrombosis of the axillary vein subsequent to effort has been recognized for forty years, but no adequate causal factor has been established.

CHARACTERISTICS OF A TYPICAL CASE

Following slight or more marked exertion but without direct injury to the vein, there is a progressive swelling of the arm with pain usually referred to the axilla. With the increase in edema are evidences of collateral circulation, and cyanosis is of frequent occurrence, although pallor may be present. Palpation of the axilla reveals a hard, indurated cord, sensitive to pressure. The development of these phenomena usually occurs without fever, and is succeeded by a period of rapid, or more often tardy retrogression. This summarizes the history of a typical case of "thrombose par effort," a spontaneous thrombosis following exertion.

REVIEW OF THE LITERATURE

The kind of effort seems as varied as the theories advanced for its method of application. In Willan's [1] three cases, the patients were athletic, muscular men employed on heavy work; Schepelmann's [2] patient had been riding a wild horse, and a man mentioned by Lahaussois [3] fell from a horse on his abducted arm; while Austin [4] of Anderson, Ind., writes of a patient who developed swelling and passive congestion of his arm apparently due to an axillary thrombosis following a fall on his shoulder.

Rosenthal [5] cites two examples, one in a woman who had been beating clothes, and one in a child playing ball; and a patient seen by me had become fatigued waiting on table for a number of hours. The patients of Baum [6] and Girard [7] and those of Schwartz, Murard and Vossenaar [8] had been engaged in heavy labor; but Cadenat,[8] as well as Fiévez,[9] report instances in which the effort was trivial, and indeed, Pellot [10] and Routier and Potherat [8] had patients in whom no provocative trauma could be advanced, while the patients of Ruge [11] and Wilson [12] awoke to find their arm swollen.

ETIOLOGY

The etiology of this interesting condition has remained in considerable doubt, and, although the factor of muscular effort or indirect trauma would seem to play an essential part, I can hardly agree with Gautier [13] or Leconte [14] that it is *minimal* effort that provokes the lesion. On the contrary, many proved cases have followed severe or prolonged exertion, and the great majority have been on the right side (according to Pellot, nine times out of ten).

Practically all writers have emphasized one or a combination of the following factors as determinants in explaining this syndrome: (1) infection; (2) slowing of the blood stream, or other circulatory change; (3) injury to the blood vessel itself or lesions of the intima.

Infection has long been regarded as the primary cause of thrombosis, and even now this theory has its adherents. Thus, Lecène, in discussing the case presented by Fiévez, contends that these events are to be explained on the basis of a latent thrombophlebitis, for the trauma is slight and infection has not been ruled out. However, if Lecène's contentions were correct, it would be difficult to explain the infrequency with which abrupt thrombosis occurs in the veins of the lower extremity, where thrombophlebitis is vastly more common and where trauma occurs at least as often. Furthermore, most of these cases of thrombosis through exertion have not been initiated by chills, their course has been unattended by fever or other evidence of infection, and in many instances negative blood cultures have been reported.

As in many other poorly understood conditions, syphilis has been invoked as an incriminating agent, despite numerous reports of repeatedly negative Wassermann reactions. Gautier and Wilson think syphilis often responsible, while Leconte probably expresses the consensus of opinion in asserting that syphilitic phlebitis is as rare as syphilitic arteritis is common, a point emphasized by Welch [15] years earlier.

The factors cited by the latter author, governing the slower blood flow in veins, have been extensively quoted; they include, "flow from smaller into large channels, . . . presence of valves, fixation of the venous wall in certain situations to fasciae and bones," etc. Von Beck [16] and Ribbert [17] would also stress the circulatory factor, Ruge even believing that thrombosis may be the first sign of a latent cardiac insufficiency, while Stanton [18] asserts that "all agree that blood stasis is probably a more important etiological factor in phlebitis than is infection." Support is further lent this view by Aschoff,[19] who insists that neither endothelial damage nor a direct coagulation of the blood play any rôle in thrombosis, but that changes in the blood elements themselves or slowing of the blood stream are the real reasons, neither factor being able to be excluded.

* From the Department of Anatomy, St. Louis University School of Medicine.

1. Willan, R. J.: Edinburgh M. J. **20**: 105, 1918.
2. Schepelmann, E.: Beihefte z. med. Klin. **7**: 23, 1911.
3. Lahaussois, M.: Presse méd. **18**: 410, 1910.
4. Austin, M. A.: Personal communication to the author.
5. Rosenthal, W. J.: Deutsch. Ztschr. f. Chir. **117**: 405, 1912.
6. Baum, H. L.: Deutsch. med. Wchnschr. **39**: 997, 1913.
7. Girard, C.: Rev. méd. de la Suisse rom. **34**: 220, 1914.
8. Quoted by Cadenat, F. M.: Paris méd. **10**: 253 (March 27) 1920.
9. Fiévez, J.: Bull. et mém. Soc. de chir. de Paris **47**: 935, 1921.
10. Pellot: Presse méd. **24**: 523, 1916.
11. Ruge, E.: Med. Klin. **7**: 1615, 1911.
12. Wilson, George: Am. J. M. Sc. **163**: 899 (June) 1922.
13. Gautier, P.: Rev. méd. de la Suisse rom. **33**: 688, 1913.
14. Leconte, M.: Médecine **3**: 449 (March) 1922.
15. Welch, W. H. (Revised by H. D. Rolleston), in Allbutt and Rolleston: System of Medicine, New York, the Macmillan Company **6**, 1909.
16. Von Beck, B.: Verhandl. d. Ges. deutsch. Naturforsch. u. Aerzte **83**, Part 1, p. 379, 1911.
17. Ribbert, H.: Deutsch. med. Wchnschr. **38**: 1577, 1912.
18. Stanton, E. M., in Ochsner: Surgical Diagnosis and Treatment, Philadelphia, Lea and Febiger **1**: 61, 1920.
19. Aschoff, Ludwig: Thrombosis, Arch. Int. Med. **12**: 503 (Nov.) 1913.

In recent years there have been renewed attempts to seek a more definite cause for the apparently selective site of these thrombi, and hence the dictum well expressed by Conner [20] that "there has been a growing tendency to regard lesions of the intima as of prime importance among the factors concerned in thrombosis." Even Chapman,[21] while maintaining the importance of infection in intravascular clotting, agrees that injury to the vessel may favor its production, although McLean [22] found that "simple crushing of a vein will not cause a clot at the point of crushing," and even repeated crushing of the vein failed to impair the intima while causing a thickening of the other coats.

However, in these experiments no procedure to slow the circulation was attempted, and Schepelmann, after an exhaustive review of the subject, believes that a circulatory disturbance as well as a lesion of the intima is essential, to which opinion Duckworth [23] also gives assent. As Cadenat expresses it, the thrombosis caused by exertion is probably due to a traumatic lesion of the intima determining the coagulation of the blood, the circulation being slowed by the forced expiration that accompanies effort.

Considerable variance of opinion exists as to the mechanics of these vessel injuries. Willan feels that in two, at least, of his cases the first part of the axillary vein was bruised against the border of the first rib, thus injuring the intima, and causing a thrombosis by compression, as suggested by Aschoff.[24] Rosenthal and Pellot,[25] however, invoke another hypothesis — that muscular action ruptures the intima or tears small lateral vessels; but Pellot believes that the lesion is not situated in the axillary or subclavian veins, for their elasticity protects them, but at the mouth of their collaterals. Neither of these authors explains his contentions on anatomic grounds, but Lahaussois gives a more detailed description of his conception of this theory. When his patient fell from the horse there was an instinctive muscular contraction, which augmented the tension of the aponeurosis and vessels and intravenous pressure. Thus there were three factors: (1) a large, fixed, venous trunk, (2) distended more as one falls, followed by (3) a sudden rise of intravenous pressure provoking a rupture of the vessel wall at the point of maximal tension. The rupture must involve the inner coats of the vein, for, while no case has come to necropsy, Cadenat cites the operations by Schepelmann, Delbet and Broca, in which the only findings were a thrombosed axillary vein.

AN ANATOMIC STUDY

In an attempt to discover the anatomic basis for this syndrome, dissections were made of the axillae of thirty cadavers, while demonstrating in the students' laboratory, and this was correlated with a study of a series of transverse and sagittal sections made from six additional bodies. Certain constant, and, I believe, important, relations of the subclavius muscle and costocoracoid membrane to the axillary vein were found, which apparently have not been previously described.

The subclavius muscle, in its course from the first costochondral junction to its insertion on the middle of the clavicle, is enclosed anteriorly and posteriorly by the fascial sheath known as the costocoracoid membrane, which, passing upward from the pectoralis minor muscle, splits to enclose the subclavius and is attached to the borders of the inferior surface of the clavicle. The medial attachment of the membrane is to the first costal cartilage and the upper border of the first rib just lateral to the costoclavicular ligament. From here it is spread laterally and somewhat obliquely across the first rib, about the middle of which it is reflected toward the inferior border of the subclavius muscle, thence extending to the coracoid process of the scapula and the coracoclavicular ligament. The membrane is

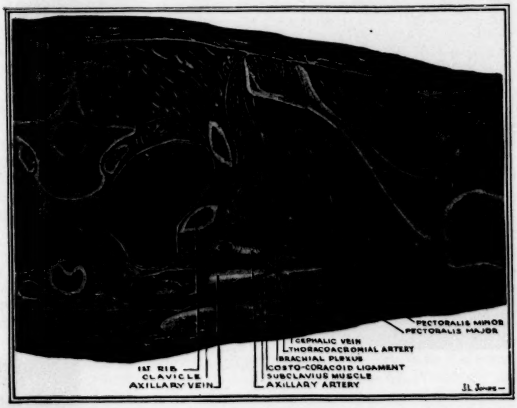

Fig. 1.—Upper surface of transverse section at level of first thoracic vertebra (lower third), adult male.

pierced by the cephalic vein, the thoraco-acromial artery, and branches of the lateral anterior thoracic nerve.

According to Cunningham,[26] "the part of the membrane extending directly between the first costal cartilage and the coracoid process is thickened and forms the costocoracoid ligament." The border of the ligament is crescentic, the concavity directed inferiorly. It is sharp and strong, the strength being due chiefly to the tendon of origin of the subclavius muscle; its lateral portion blends with muscle fibers but the inferior border of the subclavius muscle is fibrotendinous from its origin at least 50 to 60 mm. laterally, and often the fibrous bands extend to the coracoid process. Medially, also, the costocoracoid ligament is strong, and usually receives fibers from the costoclavicular ligament.

The axillary vein crosses the shelving upper surface of the first rib posterior and somewhat medial to the clavicle; at this point the vein is provided with a valve. Somewhat more laterally the fibers of the subclavius muscle, inserting into the clavicle, separate this bone from the axillary vein. Gradually, as the subclavius

20. Conner, L. A.: Nelson Loose-Leaf Medicine, Thomas Nelson and Sons **4**: 565, 1920.
21. Chapman, W. L.: Etiology, Pathology and Treatment of Phlebitis, Snow and Farnham Company, 1913.
22. McLean, A.: Pennsylvania M. J. **19**: 318 (Feb.) 1916.
23. Duckworth, D.: Lancet **1**: 481, 1913.
24. Aschoff, L.: Verhandl. d. Ges. deutsch. Naturforsch. u. Aerzte **83**, Part 1, p. 344, 1911.
25. Pellot: Paris méd. **11**: 264, 1912-1913, quoted by Gautier (Footnote 13). See also Footnote 10.
26. Cunningham, D. J.: Text Book of Anatomy, New York, William Wood & Co., 1923.

muscle follows the course of the clavicle laterally and backward, it crosses over the vein, while at a point varying from about 35 to 45 mm. lateral from the site at which the axillary vein crosses the highest part of the first rib, the vein in turn is crossed obliquely on its superior surface by the costocoracoid ligament (Fig. 1). This occurs at the point of entry of the cephalic vein into the axillary, the cephalic at this juncture being usually supplied with a valve, and as a rule crossed by the thoraco-acromial artery after its origin from the axillary artery.

As the costocoracoid membrane traverses the axillary vein, it becomes attached to its sheath, to which it furnishes fibers, as previously noted by Corning [27] and Deaver,[28] as well as to the sheath of the brachial plexus posterior to the axillary vein and above the axillary artery. In a small percentage of bodies, the cephalic vein before emptying into the axillary runs parallel to

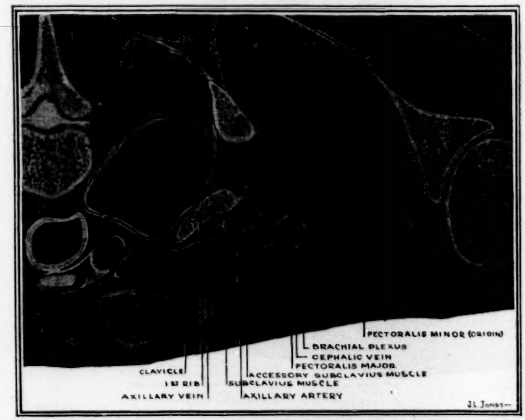

Fig. 2.—Under surface of transverse section at level of second thoracic vertebra (upper third), adult male.

it, the walls of the two veins being in contact for from 5 to 10 mm., and the costocoracoid ligament in a few instances crosses the cephalic vein immediately proximal to its mouth.

The axillary vein and costocoracoid ligament are brought into increasingly intimate apposition as the arm is abducted from the side, so that, with the arm abducted to the level of the shoulder, the subclavius muscle and costocoracoid membrane are put on the stretch, and the sharp, firm, lower border of the membrane (the costocoracoid ligament) exerts considerable pressure at the superior surface of the axillary vein. (In one body this was so pronounced that a groove 3 mm. deep was produced in the axillary vein, and in two cases the cephalic vein was markedly obstructed.) With increasing abduction this effect becomes more and more evident until the maximum pressure is brought to bear when the arm is in extreme abduction (beside the head), particularly when rotated laterally. A similar effect is produced with the arm laterally rotated in marked extension (arm drawn backward). The opposite result ensues with the arm flexed, when the subclavius muscle and costocoracoid membrane are relaxed. In this connection it may be noted that contraction of the pectoralis minor muscle, tending to pull the costocoracoid membrane as well as the coracoid process of the scapula downward, may be a further factor in maintaining the pressure of the costocoracoid ligament against the axillary vein.

As the arm is abducted, the relative angle of the axillary vein with the costocoracoid ligament varies but little, despite the increasing approximation of the two; for, as the arm is raised laterally, and the axillary vein with it, the clavicle with the subclavius muscle and costocoracoid membrane also tend to rise.

These relations can be demonstrated not only on the cadaver, but also on the living subject, as may readily be determined, for example during the course of an operation for the radical removal of the breast.

These dissections would furthermore seem definitely to refute the statement of Willan that axillary thromboses are the result of bruising against the first rib. In the first place, the rib, where it is crossed by the axillary vein, flares so that the vein crosses a fairly broad, flat shelf, hardly likely to cause injury; and, secondly, in every cadaver ample space was found between the rib and the vein.

An additional factor, apparently not hitherto emphasized, is the effect of an accessory subclavius muscle. These are uncommon but not rare variations, and have been described at some length by von Bardeleben,[29] Henle,[30] Piersol [31] and others. In my series of dissections, one accessory muscle was found (Fig. 2) anterior to the main subclavius muscle, with its origin and insertion below it. Arising from the inferior border of the clavicle just lateral to its middle, its fibers spread out fanlike, the anterior ones being inserted into the anterior tip of the coracoid process, blending with the origin of the pectoralis minor muscle, while the posterior fibers extended backward on the coracoid process for a distance of 45 mm. to blend with the coracoclavicular ligament. The fibers of the main subclavius muscle were inserted into the clavicle just above the posterior fibers of the accessory muscle. The accessory was much the smaller of the two, but covered with a dense fibrous sheath (derived from the coracoclavicular ligament?). It can readily be seen that both subclavius muscles cross the axillary vein, the accessory muscle in addition traversing the cephalic vein at its point of junction with the axillary.

CONCLUSIONS

It would seem, therefore, that the etiology of thrombosis produced by exertion has a twofold basis:

First ensues a venous stasis or a circulatory slowing produced by the forced expiration that characterizes effort. This stasis is clearly manifested in the head and neck by the cyanosis of the face and the swelling of the jugulars, and to a similar, though less readily demonstrable, extent in the upper extremity.

27. Corning, H. K.: Lehrbuch der topographische Anatomie, 1913.
28. Deaver, J. B.: Surgical Anatomy, Philadelphia, P. Blakiston's Son & Co., 1, 1910.
29. Von Bardeleben, K.: Handbuch der Anatomie des Menschen, 1912.
30. Henle, J.: Handbuch der systematischen Anatomie des Menschen, 1871.
31. Piersol, G. A.: Human Anatomy, Philadelphia, J. B. Lippincott Company, 1907.

Secondly, marked abduction or extension (drawing backward) of the arm, probably together with lateral rotation, produces a pronounced pressure by the costocoracoid ligament (furthered by the subclavius muscle) on the distended axillary vein, with resultant changes in the vascular endothelium sufficient to cause an axillary thrombosis.

Metropolitan Building.

MULTIPLE MILIARY ADENOMAS OF THE KIDNEY CORTEX

WITH SPECIAL REFERENCE TO HISTOGENESIS

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Recent interest in recasting our knowledge of the kidney has included, among other things, a study of tumors of the kidney, and special attention has been given to the histogenesis of renal neoplasms. Various articles have been contributed to the medical literature with suggested classifications and origins of these growths; but, so far, no uniformity of opinion has been reached. However, most of the investigators have agreed that tumors of the kidney are grouped into three general types: (1) tumors of the capsule; (2) tumors of the cortex, and (3) tumors of the pelvis and collecting tubules.

When we come to the origin of these tumors, a perusal of the literature shows how confusing the whole question is, with reference not only to tumors of different types but also with those of the same type. Our purpose in this paper is to report a tumor that definitely

Fig. 1.—Small adenomas: *A*, beginning of atypical tubule: *G*, papilla-like structure; slightly reduced from a photomicrograph magnified 100 diameters.

falls into the second general classification, tumors of the cortex, but the origin of which appears different from any of the tumors reported in the literature.

Garceau,[1] in 1909, reviewed a vast amount of literature on tumors. He gives a classification of tumors, and discusses at length the hypernephroma bringing out many points, some of which are very striking. He states that "renal carcinoma, sarcoma and malignant adenoma are so rare that it is impossible to give much data in regard to their origin." He is also of the opinion that "many of the cases reported as carcinoma, sarcoma and malignant adenoma and adenocarcinoma have been so persistently and frequently confounded with hypernephroma in published clinical reports of

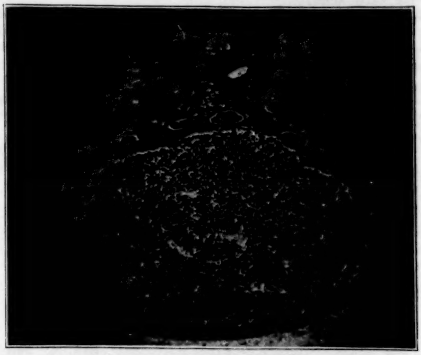

Fig. 2.—Larger adenomas; × 30.

cases, and even in pathologic reports, as to make almost all of the material relating to these tumors of little value from a clinical and pathologic standpoint." He draws the conclusion that these tumors—hypernephromas—develop from suprarenal "cell rests" in the kidney; that carcinomas, when they do occur, arise from a proliferation of the renal tubules, and that the capsule is the most frequent seat of origin for the few renal sarcomas.

As against Garceau's opinion in regard to the prevalence of hypernephroma, Delafield and Prudden[2] say, "Recently the view has been gaining ground that these growths are renal and not adrenal in origin, and it has been pointed out that, in the undoubted adenomata, cells may be found which resemble those of supposed adrenal origin."

Garceau also discusses the polycystic kidney, and advances the theory that these cysts are neoplastic in formation. In discussing the new growth theory and the malformation theory in regard to polycystic kidney, he concludes, "The most plausible explanation seems to be that the disease may originate in consequence of embryonic malformation and that subsequent neoplastic formation takes place."

Wilson,[3] in 1913, reviewed the literature up to the time he made his investigations, and added his findings to the information on this subject. Wilson was among the first to group renal tumors into the three general types: (1) tumors of the pelvis and collecting tubules, (2) tumors of the cortex (embryomas) and (3) tumors of the capsule. As to the origin of these tumors, he draws the following conclusions:

1. Renal papilloma and carcinoma apparently arise secondarily to chronic irritative processes of the adult pelvic epithelium.

1. Garceau: Tumors of the Kidney, 1909.

2. Delafield and Prudden: Textbook of Pathology, Ed. 11, 1921, p. 893.

3. Wilson: The Embryogenetic Relationship of Tumors of the Kidney, Suprarenal and Testicle.

2. The rare, squamous-celled epitheliomas probably are neoplastic developments from the embryonic inclusions within the renal pelvis of ectoderm which has found its way into the lower end of the primitive excretory duct by way of the cloaca.

3. The embryomas of the renal cortex composed of renal and other tissues and occurring in young children, are, according to Wilms, derived from inclusions of the lateral embryonic plate within the caudal portion of the nephrogenic cord in the early embryo.

4. The most numerous tumor of the renal cortex, the so-called hypernephromas or grawitzian tumors, are apparently mesotheliomas derived from nephrogenic vesicles which failed in the early embryos to form a tubular connection with the renal pelvis.

5. Most of the true sarcomas of the kidney develop primarily in adult tissue of the renal capsule and involve the cortex secondarily.

6. The renal cortex is also frequently the site of inclusions from the mesonephros and rarely of inclusions from the suprarenal gland.

Fig. 3.—Double glomerulus: *D*, capsule; *E*, anastomosing capillaries; slightly reduced from a photomicrograph magnified 200 diameters.

McCown,[4] in 1920, reviewed the entire literature on papillary epitheliomas of the kidney pelvis, and found only ten cases reported by American authors and thirty-eight by foreign authors. In the abstract of discussion of McCown's paper, Stevens, Hymen and Goldstein each mentioned having had personal experience with one case, while Kretschmer mentioned two cases of pelvic papillary tumors of the kidney. No attempt is made to determine the origin of the tumor discussed in this article.

Miller and Herbst,[5] in 1921, added another article to the literature, that of a case reported from the Presbyterian Hospital, Chicago, of a papillary epithelioma of the kidney pelvis. Their conclusion is as follows: "These multiple adenomas arise as a rule from the lining of the pelvis of the kidney, but these authors agree with Wilson that they may arise in the terminal portion of the collecting tubules." Other views and conclusions might be added, but since a thorough summary has been given of these views by the foregoing investigators, it is unnecessary again to cover the field. But, as mentioned above, none of these conclusions seem to offer a solution to the origin of the tumor here reported.

In this case a tumor of the kidney was not suspected ante mortem, but was discovered at necropsy. The kidney showed multiple miliary tumors, the structure of which would suggest even to a casual observer that the origin was not the same as any of the tumors mentioned here, so that a careful study seemed worth while.

The patient was 43 years old. The kidney condition was that of chronic senile nephropathy and miliary adenomas. Both kidneys were smaller than normal, and the surface of each was covered with little white spots immediately beneath the capsule. The right kidney was not involved to so great a degree as the left, yet there were hundreds of these little tumors present in each kidney, varying in size from a pin point to that of a pea.

A number of pieces of the left kidney were embedded by the paraffin method, and several sets of serial sections were made from 7 to 10 microns in thickness. These serial sections were mounted and stained by the usual eosin and hematoxylin method.

The sections were prepared as mentioned above and studied for the purpose of answering, if possible, the questions: (1) How do these tumors arise: (*a*) from tubules, which are continued from them, or from glomeruli? (*b*) Do they represent foreign formations unconnected with the other constituents? (2) How extensive are these tumors throughout the kidney? (3) Are there miliary and submiliary foci in which the initial stages can be seen? (4) Is this to be interpreted as hyperplasia?

In carrying out these investigations, a number of the smaller tumors were selected for study, first because the structure was simple and could be studied with greater accuracy, and, secondly, because the beginnnig stages could be seen in these small growths. Also a study was made to compare the form, relation and histology of these tumors to other structures of the kidney. After such points had been noted, larger tumors were traced through the series and were compared with the smaller ones.

The smaller tumors were more or less uniform in appearance and identical in structure. The most interesting tumor encountered was the one of which Figure 1 was made. This particular tumor was typical in structure and arrangement, and seems to embody very nearly all the processes seen in the others.

These small tumors were found to be glomerulus-like structures composed of tufts of anastomosing capillaries covered with epithelium. There is a definite capsule of connective tissue lined by epithelium surrounding these tumors. However, a great deal of the connective issue around the tumor illustrated is due to the process of senile nephropathy and not to hyperplasia of the connective tissue capsule itself. The cells of the epithelium of the capillaries of the glomerulus-like tuft, and also of the capsule, are cuboid and even cylindric columnar epithelium arranged usually in single but sometimes in double layers along the capillaries. The cytoplasm is granular in appearance and the nuclei stain very deeply and stand out prominently. A few mitotic figures were present. In some tumors these anastomosing capillaries break up directly on entering the subcapsular space, while in others they follow up a papilla-like structure of connective tissue before breaking up, as is seen in the tumor illustrated.

4. McCown, P. E.: Papillomatous Epithelioma of the Kidney Pelvis, J. A. M. A. **75**: 1191 (Oct. 30) 1920.
5. Miller, E. M., and Herbst, R. H.: Papillary Epithelioma of the Kidney Pelvis, J. A. M. A. **76**: 918 (April 2) 1921.

It is interesting to note that the larger tumors, as seen in Figure 2, lose their glomerulus-like appearance and take on no definite arrangement. However, the character of the cells is still cuboid, and cylindric columnar epithelium, and the cells are arranged in single and sometimes double layers along the capillaries.

Fig. 4.—*F*, glomerulus growing down into proximal convoluted tubule; slightly reduced from a photomicrograph magnified 300 diameters.

The cytoplasm of the cells is granular, and the nuclei stain darkly. These tumors are found throughout the cortex. The larger ones are located immediately beneath the capsule, while the smaller ones are scattered throughout the kidney substance deeper in the cortex. Not a single instance was noted of a tumor in the medulla.

In some cases, atypical tubules were connected with the glomerulus-like structures. The beginning of such a tubule can be seen at *A* in Figure 1. The tubule could not be traced far because of atrophy and the hyperplasia of the connective tissue which is present.

Aside from the tumors, some interesting conditions of the glomeruli were seen. These consisted of double glomeruli and also of glomeruli growing down into the proximal convoluted tubules. An instance of a double glomerulus is shown in Figure 3. That this is really a double glomerulus and not two glomeruli lying close together is shown by the facts, first, that the capsule as seen at *D* in Figure 3 is common to both of the glomeruli and, second, because there is an anastomosis of the capillary loops as seen at *E* in Figure 3. An instance of the glomerulus growing down into the beginning of the proximal tubule as is shown at *F* in Figure 4. These may not have anything to do with the subject in hand, and the real significance can be determined only by further study. However, these processes seem to indicate a disturbance in glomerular formation.

CONCLUSIONS

1. These tumors apparently arise from glomeruli. The points of similarity between these tumors and glomeruli are as follows: (*a*) The general shape and appearance is that of a glomerulus. (*b*) The tumors consist of branching and anastomosing capillaries, as seen in a normal glomerulus. (*c*) There is a definite capsule around the structure. (*d*) In some cases there are atypical tubules which leave the structure which is representative of the proximal convoluted tubule that leaves a normal glomerulus. The chief points of difference are: (*a*) The capillaries, instead of breaking up and anastomosing when they first enter the subcapsular space, in some instances follow up the papilla-like structures of connective tissue, as seen at *G* in Figure 1. (*b*) The epithelium of the capsule and also the epithelium of the capillaries of the glomerulus-like tuft is cuboid and even cylindric columnar epithelium instead of simple squamous as in the normal glomerulus. (*c*) The tubules that leave the tumor are atypical in structure. However, this would be expected in the case of tumors.

2. These tumors do not arise from tubular epithelium, as is shown by the fact that there is no arrangement of cells into tubules, and also the structure of the cells is unlike that of tubular epithelium.

3. That these tumors do not arise from foreign "cell rests" of suprarenal or other foreign tissue but arise from kidney substance itself is shown by the facts that: (*a*) The cells found here are different from those seen in suprarenal tissue. (*b*) The arrangement of the cells differs from that of other foreign tissue. (*c*) The cells and arrangement of this tumor differ from cells of tumors reported in the literature studied. (*d*) The large number present would indicate that these are not cell rests, as it is hardly probable that hundreds of these cell inclusions would be present in one or both kidneys, as was true in this case.

4. The structure and appearance of these growths prove definitely that they are tumors and not hyperplasia.

THE DIAGNOSIS AND TREATMENT OF CARDIOSPASM *

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In considering diseases of the alimentary tract, there is a tendency to overlook the esophagus as a site of

Fig. 1.—Apparatus used in dilating cardia in cases of cardiospasm.

pathologic processes. However, lesions in this organ are not infrequent. The one most commonly encountered, of course, is cancer, and the next is cardiospasm, which may be defined as a spasm of the musculature of the cardia or epicardia, usually so severe as to produce

* From the Section on Medicine, Mayo Clinic.
* Read before the Third Annual Clinic, Mitchell, S. D., Nov. 6, 1923.

partial or complete obstruction to the passage of food into the stomach. It is frequently associated with moderate or marked dilatation of the esophagus.

The first case of cardiospasm was reported by Purton, in 1821; seventeen cases were compiled from

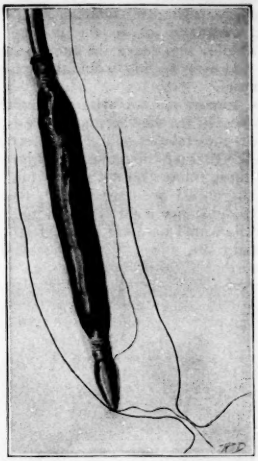

Fig. 2.—Dilator in the lower esophagus; thread lax.

the literature by Zenker and von Ziemsen, in 1878. Through the recent writings of Einhorn, Plummer,[1] Sippy, Verbrycke,[2] Jackson and others,[3] the disease has become more generally known. The etiology of the condition is unknown, the numerous hypotheses suggested failing to explain all cases. Among the causes may be primary spasm, primary atony of the musculature of the esophagus, irritative lesions in the vagus nerves, esophagitis, fissures at the cardia, kinking of the esophagus at the hiatus esophagi, and extrinsic pressure from the liver. Also the possible relation to foreign protein sensitivity has been suggested, and there may be a definite basis for this hypothesis, since so many such patients also have hay-fever or asthma. Cases of cardiospasm may be divided into two groups:

In Group 1 are included cases in which there is a slight sense of obstruction at the cardia to the passage of food, with or without pain, but no roentgenographic evidence of obstruction to the passage of a thick barium acacia mixture.

In Group 2 the symptoms may be quite as mild as in Group 1, but there is a definite obstruction at the cardia to the barium meal on roentgenologic examination. In this group the symptoms are usually much more marked than in Group 1. Patients classified in Group 1 are prone to psychoneurotic tendencies; and, although some of them may require forcible dilation of the cardia to relieve their symptoms, many are relieved by the use of antispasmodic drugs. Patients in Group 2 do not, as a rule, exhibit psychoneurotic tendencies, and medical measures are of little value.

Four hundred and fifteen patients, classified in Group 2, have been observed at the Mayo Clinic from 1908 [4] until June, 1923. The ages of the patients varied from 5 to 83 years, but almost a third of them were in the third decade of life. There were 246 males and 169 females. The duration of symptoms was from two months to forty-five years, the average being about seven years. The onset of symptoms was sudden in sixty-seven patients, and gradual or not stated in the others.

SYMPTOMS

The symptoms varied according to the stage of the disease, and the degree of dilatation of the esophagus above the spasm. At first there was usually temporary obstruction to the passage of foods, without regurgitation. Later there was regurgitation of food immediately after ingestion, and still later, the regurgitation was delayed for hours or even days. The most constant symptom was dysphagia, varying in degree from a slight obstruction of food to complete esophageal closure for as long as eighteen years. The dysphagia differed from that produced by benign and malignant strictures in that fluids were as likely to give trouble as solids. Apples, popcorn and cold water seemed to cause the greatest difficulty. Because of the limited intake of food, marked nutritional disturbances occurred, especially during the early stages of the disease. Later, patients acquired methods whereby more food could be forced into the stomach, usually by eating solid or semisolid food, and then drinking several glasses of water in rapid succession. This causes the spasm to

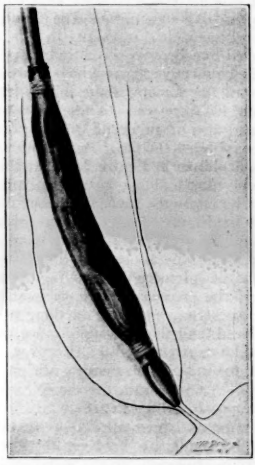

Fig. 3.—Dilator in lower esophagus; traction on thread pulling dilator in cardia.

relax and allows the food to pass into the stomach. One hundred and thirty-seven of the patients often regurgitated food and mucus at night. The regurgi-

1. Plummer, H. S., and Vinson, P. P.: Cardiospasm: A Report of Three Hundred and One Cases, M. Clin. N. Am. **5**: 355-369 (Sept.) 1921.

2. Verbrycke, J. R., Jr.: Cardiospasm, Associated with Aneurysm, Aortitis and Angina, with Report of Twenty-Three Cases, South. M. J. **16**: 338-340 (May) 1923.

3. Vinson, P. P.: A Case of Cardiospasm with Dilatation and Angulation of the Esophagus, M. Clin. N. Am. **3**: 623-627 (Nov.) 1919; Cardiospasm Associated with Esophageal Diverticula, New York M. J. **117**: 540 (May 2) 1923; Complete Esophageal Obstruction in Cardiospasm, Am. J. Surg. **37**: 285, 1923.

4. Forty cases were reported from the Mayo Clinic by Plummer previous to 1908.

tated food was unchanged by digestion and did not contain free hydrochloric acid. Test meals passed into the stomach very slowly, and the content recovered by the stomach tube usually came from a dilated esophagus. Occasionally, streaks of blood were noted in the regurgitated material. One hundred and ninety-seven patients had epigastric pain; it was the chief complaint of many, and the initial symptom of a considerable number, often antedating, by several months, the onset of dysphagia.

Verbrycke has mentioned the association of cardiospasm with angina pectoris. A differential diagnosis of the two conditions, if pain is the predominating symptom, sometimes requires very careful study.

Forty-nine patients had respiratory symptoms, usually consisting of nocturnal cough, and dyspnea after meals, due to regurgitation, or the pressure from the dilated esophagus filled with food. A few patients noted hiccup as an early symptom.

DIAGNOSIS

The diagnosis of cardiospasm is made on the typical roentgenographic findings and a history of dysphagia of long duration, without progression, in patients who have had as much difficulty in swallowing liquids as solid food, and in whom a 45 French olive can be guided into the stomach without obstruction on a previously swallowed silk thread. The only lesion that deserves serious consideration in making a diagnosis of cardiospasm is a carcinoma located at the cardia. Careful study will usually clear up the diagnosis in such a case. A diverticulum of the lower end of the esophagus, congenital or acquired, herniation of the stomach through the diaphragm, or a diverticulum of the cardiac end of the stomach may present problems difficult to solve, and may lead to some confusion in making a differential diagnosis. Angina pectoris and gallstone colic may simulate the pain of cardiospasm. Two of the patients had diverticula of the middle third of the esophagus, which, however, apparently did not cause symptoms.

TREATMENT

Numerous forms of treatment have been employed in the management of cardiospasm, chief of which are antispasmodic drugs, and mechanical dilation of the cardia by some type of expanding dilator (Fig. 1). Occasionally, a patient is relieved temporarily by large doses of tincture of belladonna or atropin sulphate; but, after the immediate effect of the drug has passed, the symptoms are as marked as before. The passage of sounds, stomach tubes or bougies is rarely beneficial. Physicians who have observed many such cases believe that the cardia must be forcibly distended before the patient can obtain permanent relief from dysphagia. This was first accomplished by performing gastrostomy and stretching the cardia manually. Later, Russell devised a bag that could be passed through the mouth to the cardia, and then be distended by means of air or water pressure. As air is more compressible than water, its use is more dangerous, and for this reason, and because of the greater ease in controlling the pressure, water is generally used. The degree of pressure for dilating the cardia depends chiefly on the dilatation of the esophagus above the spasm. In cases in which the esophagus is not widely dilated, the pressure should be from 16 to 22 feet of water, whereas in the cases in which the dilatation is more marked, from 24 to 28 feet is reasonably safe. The safety depends probably more on the size of the bag than on the amount of pressure, as a pressure of from 22 to 24 feet of water will completely distend the bag, and increased pressure will not add materially to the risk of dilation. The dilator is guided into the cardia on a previously swallowed silk thread, and the water pressure is gradually increased to the desired level and maintained there for a few moments (Figs. 2, 3 and 4). The dilator is allowed to empty and is then withdrawn. The stretching is usually painful, and if not, the dilator probably has slipped into the stomach or esophagus. Pain following the stretching is sometimes delayed for from twenty-four to thirty-six hours.

In the majority of cases, it is not difficult to locate the cardia with the dilator and to dilate it

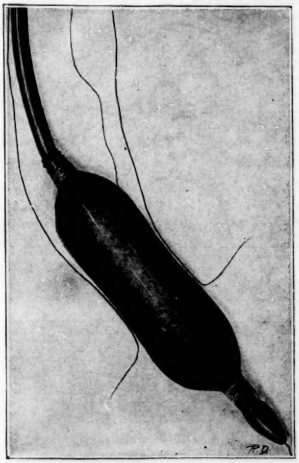

Fig. 4.—Distended dilator in the cardia.

effectually, but in a few cases satisfactory stretching may be very difficult. It has not been found necessary, at the Mayo Clinic, to use the roentgen ray to control dilation, and there is a distinct disadvantage in carrying out the treatment in a partially darkened room. No anesthesia has been used.

Dilation of the cardia should be regarded distinctly as a surgical procedure, since occasionally there may be a fatality. Other complications, such as a moderate hemorrhage from the esophagus and pleurisy with effusion, have been observed, but rarely.

RESULTS

The immediate results are remarkable. Following dilation, almost all patients are able to eat any type of food without discomfort, and if the closure has been complete for several days, the patient gains weight immediately. There are recurrences in about 25 per cent., usually noted within the first six months after treatment. A few patients cannot be completely cured, in spite of frequent dilations, but the majority obtain complete relief if the treatments are repeated. There have been four deaths following dilation.

OBSTETRIC BRACHIAL PARALYSIS (ERB'S PALSY)*

SAMUEL W. BOORSTEIN, M.D.
NEW YORK

Cases of obstetric brachial paralysis are common enough and are of sufficiently serious nature to give anxious moments to the general practitioner. He is often the first one to notice the paralysis after the tedious work of a forceps or a prolonged delivery. As the hope for future connections of the young practitioner with the family may depend on the outcome of this case, one can easily understand his anxiety in such an instance. He ordinarily tells the parents that the child will recover completely in a short while or, on the contrary, he tells with grief that nothing can be done. Such news, of course, he breaks to the family after the lapse of a few months. Neither statement is wholly accurate, and either the teaching of the medical school is at fault or the student's memory is poor. It should therefore be of great interest to the general practitioner to note the recent studies in this field and the latest methods of treatment. It may save the family physician many anxious moments, and the patient years of discomfort and disability.

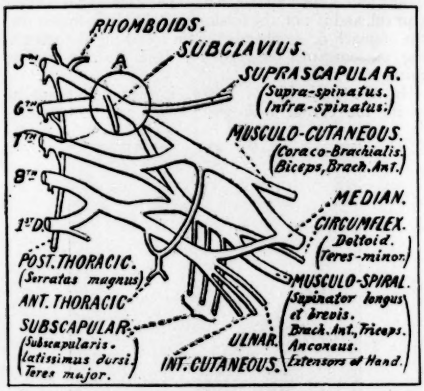

Fig. 1.—Brachial plexus showing Erb's point at *A*. The subscapularis nerve in this illustration comes off below Erb's point, but generally arises from the fifth nerve above its junction with the sixth cervical root (Sever).

Fig. 2.—Separation of head and shoulder, with shoulder caught behind the symphysis pubis (Nagel).

It is due mainly to A. S. Taylor [1] of this city that the etiology has been emphasized and operation on the plexus advanced. In addition, Fairbank [2] of England and Sever [3] of Boston have attracted the attention of the general practitioner to the great value of orthopedic treatments in the early stages, and to the operative means in the later stages to correct deformities present.

Fig. 3.—Stretching of nerves by oblique traction when the shoulder is caught under the pubes (Sever).

As a result of the propaganda work of these men, the orthopedic surgeon is now being consulted very early and thus he has a chance to prevent the distressing and disabling deformities and frequently to institute a complete cure.

This paper may bring a clearer understanding of the malady, so that in managing the delivery one can prevent the unfortunate occurrence of this mishap. Should an obstetric brachial paralysis result, the parents can be properly guided so that the future of the child will not be hampered.

ETIOLOGY

Many theories have been advanced, but the majority of observers agree with the "traction theory" so conclusively proved by the excellent work of Taylor.

* From the surgical division of Fordham Hospital.

1. Taylor, A. S.: Brachial Birth Palsy and Injuries of Similar Type in Adults, Surg., Gynec. & Obst. **30**: 494-503 (May) 1920. Clarke, Taylor and Prout: A Study of Brachial Birth Palsy, Am. J. M. Sc., October, 1905.
2. Fairbank, H. A. T.: J. Orthop. Surg. **2**: 284, 1920.
3. Sever, J. W.: Obstetric Paralysis, Am. J. Dis. Child. **12**: 541-578 (Dec.) 1916; The Operative Correction of Long Standing Erb's Palsy, Am. J. Surg. **35**: 287 (Sept.) 1921.

According to the "traction theory," the damage is done by the stretching of nerves of the brachial plexus by forcible separation of the head from the shoulder during delivery, or by direct traction on the arm. The stretching, of course, may often result in complete tear of the nerve fibers (Figs. 1, 2, 3 and 4).

As general practitioners still perform most of the deliveries, it may not be amiss to quote Ehrenfest [4] on the mechanism of the force producing the injury at birth:

(1) The plexus is occasionally injured by the forceps and (2) possibly more often traumatized by a finger during improperly executed traction in the delivery of the after-coming head; (3) cervical nerve fibers under special mechanical conditions are injured by compression between clavicle and underlying bone structures, both in vertex and breech labors, and (4) probably less often are actually lacerated by excessive traction.

It has been proved beyond any doubt that the cause is not a congenital posterior dislocation.[5] In reality

Fig. 4.—Stretching of nerves by oblique traction in delivering the posterior shoulder when caught on the perineum (Bumm).

there is no case on record in which, in an obstetric brachial palsy case, a posterior subluxation of the shoulder has been found at birth.

Analysis of Sixty-Four Patients (Sixty-Seven Cases)

Boys	40	
Girls	24	
Right arm affected	42	
Left arm affected	19	
Both arms affected	3	
Upper arm type	30	Total, 64
Lower arm type	31	
Both upper arm type	1	
Both lower arm type	2	
History of normal delivery	17	Total, 64
History of difficult labor	18	
History of forceps	24	
Unknown	5	
Vertex presentation	55	Total, 64
Breech presentation	9	

The accompanying table, based on analysis of sixty-four patients under my care, shows interesting phases of the etiology.

4. Ehrenfest, Hugo: Birth Injuries of the Child, New York, D. Appleton & Co., 1922, pp. 165-182.
5. Taylor, A. S.: So-Called Congenital Dislocation of the Shoulder; Posterior Subluxation, Ann. Surg. 74: 368 (Sept.) 1921.

PATHOLOGY

Two types of paralysis are usually seen:

1. The upper arm type (Erb's paralysis) is the result of a lesion of the suprascapular nerve and the fifth and

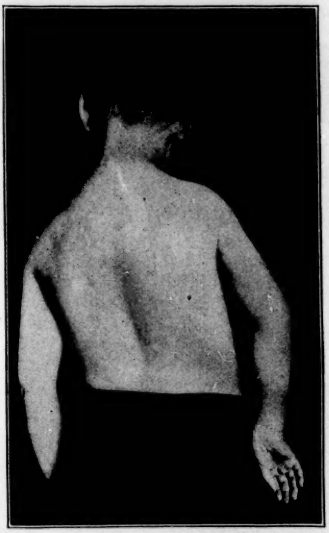

Fig. 5 (Case 4).—Condition, Aug. 15, 1920, before treatment, showing the typical "policeman's-tip" position.

Fig. 6.—Proper position of a cast.

sixth cervical nerves at or about Erb's point (Fig. 1 *A*). This injury produces a paralysis only of the muscles of the upper arm with the exception of the supinators.

2. The less usual type, the so-called lower arm or whole arm type, is the result of injury not only to the fifth and sixth cervical but also to the seventh and eighth and first dorsal. When the eighth cervical and first dorsal alone are involved, it is called the "lower arm type," or "Klempke's paralysis." It usually results

Fig. 7.—Brace used for deltoid paralysis.

from traction on the arm in a breech case, or traction in the axilla in a vertex presentation or overextension of the head in cases of face presentation.

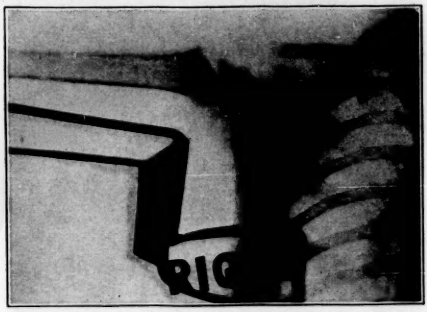

Fig. 8.—Early case of brachial birth paralysis).—Proper position of the shoulder.

SYMPTOMATOLOGY

If the child is examined shortly after birth, the arm is found to be limp at the side in a position of adduction and internal rotation. If the arm is handled or moved, the child may cry, owing perhaps to injury of the capsule.

In the upper arm type, as the child gets older, the arm assumes the characteristic position of adduction and internal rotation with slightly flexed elbow, forearm pronated and palm looking backward in the typical "policeman's tip position" (Fig. 5). The child is unable to abduct or raise the arm at the shoulder, owing to the paralysis of the deltoid and supraspinatus. Sever [6] writes:

> Outward rotation cannot be accomplished because of the paralysis of the infraspinatus and teres minor, and the arm cannot be internally rotated, owing to the internal rotators, namely, the teres major, subscapularis and latissimus dorsi, being already fully contracted owing to lack of opposition. There is inability to put the hand on top of the head or behind it. Often the only way a child can get the hand to the mouth is to elevate the elbow above the shoulder level; it has to be done this way because of the impossibility of outwardly rotating the arm. If one cannot outwardly rotate the humerus, it is impossible to get the hand to the mouth without elevating the elbow, because of the persistent inward rotation. The arm cannot be flexed at the elbow, owing to the paralysis or weakness of the biceps, brachialis anticus, coracobrachialis and supinator longus. Supination cannot be carried out, owing partially to the inward rotation in which the arm is held and the weakness or paralysis of the biceps and supinator longus and brevis.

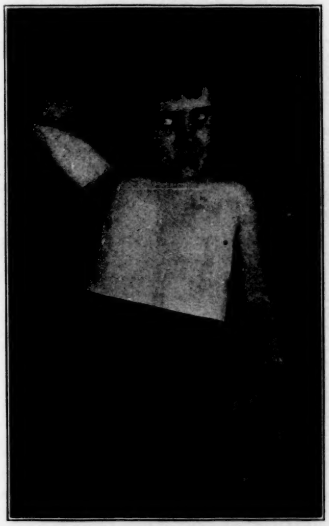

Fig. 9 (Case 4).—Condition, Dec. 27, 1922, after operation and treatments: power of abduction when the elbow is flexed; patient can rotate arm outward.

In the whole arm type, the disabilities and deformities of the upper arm type are present. In addition there is a wrist drop and paralysis of the flexors and extensors of the wrist and fingers, with more atrophy than in the upper arm type.

In the upper arm type, partial recovery is the rule and the patient has some use of the limb, of course within the limits of the contracted muscles; while in the lower arm type, the shoulder muscles may recover a little but the lower arm muscles never do and the

6. Sever, J. W. (Footnote 3, first reference).

patient is left with a useless, dangling arm. As Sever[6] says:

Atrophy of the muscles in these cases of obstetric paralysis is never very marked, except in some cases of the lower arm type. One never sees the extreme atrophy so noticeable in cases of infantile paralysis. This lack of marked atrophy is undoubtedly due to the fact that the nerve impulses are rarely fully blocked and that the muscles practically never, except in rare cases, wholly lose their entire enervation. Some normal nerve impulses pass through the scar tissue at the site of the lesions, owing to incomplete destruction or injury of the nerve, and so keep the muscle tone up to a certain point. There is always a definite shortening of the arm, however, in all cases, due probably as much to nerve injury as to lack of use.

In the upper arm type the sensation is normal, while in the lower type loss of sensation is present.

No change, on roentgen-ray examination, is found immediately after birth. Of course, when a fracture is present, it will show. Displacement of the epiphysis is difficult to see on the plate. As the child grows older, the epiphysis and the scapula, as well as the shaft of the humerus, are always smaller than in the unaffected side.

COMPLICATIONS

1. *Early.*—(*a*) Facial paralysis, which is usually mild and on the same side as the paralyzed arm, and is probably due to pressure of the forceps on the facial nerve.

(*b*) Fracture of the clavicle.

(*c*) Separation of the epiphysis of the head of the humerus.

2. *Late.*—(*a*) Posterior subluxation of the humerus is always a secondary deformity; it never occurs before the age of 6 weeks. It is due to contraction of the unparalyzed pectoralis major, subscapularis and teres major. The external rotators, which are completely paralyzed, are constantly overstretched, with the result that the head of the humerus is gradually displaced backward.

(*b*) Hooking of the acromion.

(*c*) Pronation of the forearm.

DIAGNOSIS

The diagnosis usually presents no difficulties, if one considers the history and remembers that the malady is usually noticed, if not immediately after birth by the physician himself, then by the mother, grandmother or nurse on the first day. A powerless arm in a new-born infant may, however, be caused by separation of the epiphysis of the head of the humerus, or by a fracture of the clavicle. One should examine for these conditions. Some of these occurrences may better be brought out by the roentgen ray.

Inequality in the pupils without question implies an injury to the inner cord of the brachial plexus on the paralyzed side. The pupil is irregular.

The lesion must be differentiated from spastic paraplegia, anterior poliomyelitis, diphtheric paralysis, fracture of the clavicle or humerus and syphilitic epiphysitis.

PROGNOSIS

Jones and Lovett[7] write:

Competent obstetricians and general practitioners occasionally see a certain number of spontaneous recoveries from a condition, which, at the outset, resembles obstetrical paralysis. They are therefore inclined to give a good prognosis; but that is misleading, just as the statements of the surgeons that all cases are bad since he sees the end-results. Without treatment, as a rule, in the course of years a certain amount of motion is restored to the arm where the paralysis is of the upper arm type. There is some shortening of the bones and some atrophy of the muscles.

Practically all the patients are able to raise the arm to the shoulder level and can use the lower arm and hand well, except for varying degrees of supination. In the lower arm type the outlook is not so good, although many of the patients regain use of the upper arm in spite of the persistent paralysis of the lower arm and hand.

TREATMENT

Prevention.—As most of the cases are due to delivery, Ehrenfest[4] gives a proper warning to the obstetrician, advising special care in the application of forceps, and emphasizes the methods of managing the shoulders as follows: "In the Mauricean-Smellie maneuver, the tip of the index and middle fingers should be forked above the shoulders, not on the sides of the neck, but on the sternum of the infant." He advises that obstetricians with short fingers should keep the ends of these two fingers in extension and not flexed, as would be their more natural attitude in the attempt to pull on the shoulders. If severe traction is necessary, it should be made along the axis of the child and never against or on the head in lateral flexion.

Early Treatments.—(*a*) Conservative: In order to prevent contraction of the unparalyzed muscles, it seems best to have the arm placed as comfortably as possible in such a position that the stronger muscles cannot become contracted. Hence the arm should be placed in a plaster cast or a wire or aluminum aeroplane splint, the shoulder abducted and rotated outwardly, the forearm supinated, the elbow flexed and the wrist dorsiflexed (Figs. 6, 7 and 8). The earlier the support is put on, the better it is, even in the first week. The brace or cast also takes the drag off the paralyzed shoulder muscles, particularly the deltoid, allowing them to regain their strength more quickly, and prevents subsequent shoulder deformity, such as subluxation and acromial hooking and overgrowth. One should, however, support it in the proper position. Many physicians still make the mistake of tying the hand to the side, thus perhaps increasing the tendency to deformity and certainly not alleviating it.

The arm should be retained in the plaster cast or splint for two or three weeks. This is then taken off for massage and gymnastic treatments, but reapplied; or it may be changed to a platform splint. If the arm is kept in the support between massage and gymnastic treatments, one obtains a better subsequent position of the arm.

Massage and exercises are of the greatest importance, and should be done daily, if possible. It is most unwise to allow a child to become obsessed with the fact that it has an arm which cannot be used. Exercises should consist of stimulating movements in the arm by games and reaching for toys, efforts being made to encourage voluntary movements of the affected muscles. In the Boston Children's Hospital, rhymes and songs have been instituted to obtain voluntary response from the infants.

When the child becomes older, it is possible to carry out the exercises more effectively, adding at the same time games, the use of dumb bells, etc.

With a few words I can dismiss the discussion of the use of the universal panacea "electricity." Not only

7. Jones, R., and Lovett, R.: Orthopedic Surgery, New York, William Wood & Co., 1923.

has it no beneficial effect on the child, but it is harmful in that it prevents voluntary movements and causes overuse of the denervated muscles. In addition, it seems quite cruel to expose constantly a delicate limb of an infant to the painful sensation of the electrical treatments.

The longer the aeroplane splint is worn, the less danger there is of the contractions becoming troublesome.

If contractures develop in the subscapularis and pectoralis major, or if the child came under observation after the deformities had already developed, the deformities must be corrected before any other treatment is attempted.

(*b*) Early Nerve Operation: In many cases, particularly those of the upper arm type, there will be a perfect recovery with these orthopedic conservative treatments, and no operation will be necessary. In some cases of upper and in a great many of the lower type, an operation on the plexus to repair the damage has often to be undertaken.

Taylor [8] has advocated plexus operation, exposing the plexus and suturing the damaged nerve ends. He successfully performed this operation in many cases. While formerly he advocated operation in every case, he has changed his opinion as the result of observing the good results obtained by the proper orthopedic treatments. His views concerning the advisability of operation are as follows:

> Inasmuch as deformities can be prevented by proper postural treatment, and inasmuch as nerves will regenerate even though many months have passed since injury, one may wait safely for a considerable period of time provided correct treatment is followed during the interval. If sufficient recovery has occurred during the first three months to justify hope of almost complete spontaneous recovery, then it is legitimate to follow the case along with physical therapy. If, on the other hand, improvement at three months has been unsatisfactory, then, other things being equal, it is wise to do an exploration of the plexus. If there is damage which would not have recovered spontaneously, then the lesion can be repaired at once. If, by chance, the plexus is found not so involved as to demand surgical repair, the wound, which is practically only a skin incision, can be closed and the child's risk has been practically nothing. The advantage of this method is that, without material risk, one knows early in the case just what he is dealing with, and if surgical repair is necessary it is done at the time which gives the greatest promise of favorable results.[9]

The disadvantages of operation in early infancy lie in the very small field and small nerves, which make the technical part of the suturing more difficult. On the other hand, the dissection is easier, because the cicatricial tissue has not become so dense.

Late Treatments.—(*c*) Correction of Deformities: The most distressing deformity is at the shoulder. This is best corrected by the operation of Sever,[10] whose method, in short, is as follows:

> An incision is made on the anterior aspect of the arm, beginning at the tip of the acromion and carried down to below the insertion of the pectoralis major. The cephalic vein is found generally in the outer edge of the wound, and tied or drawn aside. The tendinous insertion of the pectoralis major is defined, raised on an instrument, and divided all the way across the bicipital groove. The pectoralis major muscle is then retracted inward out of the way, giving one a clear view of the axilla and shoulder joint. The arm should now be abducted fully and rotated outward as far as possible. . . . With the arm fully abducted and outwardly rotated, the insertion of the tendon of the subscapularis is to be defined. . . . The best way to divide the tendon is to pass under it a blunt instrument and so define it. It is of the utmost importance that the shoulder joint should not be opened. The tendon of the subscapularis should always be found, identified and lifted up before it is divided. . . . Following the division of the subscapularis, the outward rotation is perfectly free, as well as abduction. If at this stage there is still some subluxation of the head of the humerus which can not be fully reduced, an osteotomy of the acromion should be done, and the loose distal piece either removed or tilted up so as to allow the head of the humerus to slip back into the glenoid. The wound is then closed with a few deep stitches, and a continuous catgut stitch for the skin. No drainage is required. Usually very little bleeding takes place. The arm is then placed on a wire splint, which holds it elevated to or above the shoulder level, abducted and fully rotated outwardly with the hand in full supination. At the end of ten days, massage, baking and exercises are begun, and are continued daily, or at least four times a week. The splint should be worn at night for at least three months, and during the daytime for at least three months longer.
>
> The operation merely releases contractions, and gives the stretched and partly paralyzed muscles a chance to recover their tone and strength; consequently, the after-treatment is of the utmost importance.

As a rule, when the shoulder operation has been properly performed and the after-treatments have been carefully carried out, there will be free and full active outward rotation as well as increased ability to elevate the arm at the shoulder, depending somewhat on the ability of the deltoid to regain its strength after long stretching and disuse. Supination becomes either normal or nearly so. The child can get the hand to the mouth easily, and can put it on top of the head and behind the head, which in girls is all important so as to enable them to arrange their hair.

The difficulty of supinating the forearm can be overcome by dividing the pronator radii teres. This can often be transformed into a supinator by joining that tendon with the flexor carpi radialis. This conjoined tendon is then pulled through the interosseous membrane, carried round the back of the radius and inserted on the outer side (Tubby's method.) One can also simply insert the pronator radii teres into the tendons of the extensor carpi radialis longus and brevis.

(*d*) In the Lower Type: Here the outlook is not so good. The splint and the exercises should be resorted to as in the upper type. The lower type, however, usually requires plexus operation. Contrary to Sever's conclusion, I agree with Taylor that the improvement is marked in many cases and should certainly be encouraged.

There are other operations which may be necessary. Their discussion, however, lies beyond the scope of this paper.

To recapitulate, the important treatments are: (1) very early support; (2) support in the proper position to prevent deformities; (3) continuation of support for a considerable period; (4) massage and exercises carefully carried out; (5) operation to correct the deformities, and (6) plexus operation to repair damaged nerves, if the orthopedic treatments have not instituted a complete recovery.

A FEW INTERESTING CASES

Case 1.—*History.*—Herbert A., aged 3 weeks when referred to me by Dr. Ballen in 1918, had right sided whole arm paralysis. There was a distinct history of a difficult labor followed by forceps. A plaster cast was applied, which was

8. Taylor, Alfred S. (Footnote 1, first reference).
9. Boorstein, S. W.: Treatment of Obstetric Brachial Paralysis, with a Report of Fifty Cases, J. Bone & Joint Surg. 5: 778-803 (Oct.) 1923.
10. Sever, J. W. (Footnote 3, second reference).

left on for ten days, when it was split open and made into a removable splint. Baking, massage and muscle training were begun; the plaster splint was taken off only for the massage. After five months the support was left on only for the night. The child made a good recovery in five months, but was kept under observation for two years. The only deficiency of function is that of supination. The child can supinate only to about three fourths of normal. However, he has good use of the entire limb. I advised an operation on the pronator radii teres, but the mother refused.

Comment.—Thus, we have a child that would probably have remained with paralysis of the lower type, regaining almost full function by keeping the limb in proper support, guarding mainly against deformities, preventing of undue stretching of denervated muscles and facilitating regeneration of nerves by massage and exercises. No electricity was used. The only deficient function is the supination. I have had several patients that came early for treatments, even as early as the fifth day. Most of them made a perfect recovery. The only deformity that is hard to prevent in many cases is the pronation.

CASE 2.—*History.*—Robert C., aged 7 weeks when referred by Dr. Clurman, had whole arm paralysis of the right upper extremity. There was evidence of hematoma and adhesions of the right sternocleidomastoid; the shoulder was adducted and internally rotated. There was distinct laxity of the shoulder joint. The head was dislocated backward; the elbow joint was extended; the forearm was pronated; there was some power in the fingers. A plaster cast was applied and left on for three weeks; then treatments were instituted. The child made a good recovery in one year. The only deficiency left is inability to supinate freely.

Comment.—This was a case in which I suspected that a nerve operation would be necessary. However, with the proper treatments, the result was very good.

CASE 3.—*History.*—Alvin A., aged 4 weeks when referred by Dr. Rubinstein, had whole arm paralysis of the right side. There was a distinct history of impacted shoulder. The child was put in a plaster cast for two and a half weeks, and then the usual treatments were instituted. After treating the child for two months I found that he kept the arm continually in an abducted position (about 90 degrees with the torso) owing to adhesions that had formed. It took about four months for the shoulder to become loose. The child made a perfect recovery.

Comment.—The adhesions in this case were evidently due to the injury of the capsule at birth; the abducted position should not have been maintained for so long a time. This case is reported as a warning to guard against adhesions when there is evidence of injury to the capsule. It also shows the inadvisability of keeping such patients in the abducted position more than five or six days, massage, exercises, etc., being then begun.

CASE 4.—*History.*—Donald M., aged 8 years when first seen by me, in August, 1920, gave a history of instrumental delivery followed by whole arm paralysis on the right side. He was treated by massage only, and no attention was paid to prevent deformity. When he came to me, the right upper extremity was held adducted and internally rotated, with the elbow flexed to an angle of 160 degrees. The shoulder could not be abducted more than an angle of 5 degrees when he had to use the scapula. When he lay on his back, he could abduct the shoulder to an angle of 75 degrees. Outward rotation was markedly limited. The elbow was flexed to an angle of 140 degrees; it could be fixed to an angle of 90 degrees. The forearm was pronated and could not be supinated. Wrist motion was fair; finger motion, almost nil. The motor power of the hands was: right, 5 pounds (23 kg.); left, 22 pounds (10 kg.). There was slight atrophy of the arm and forearm muscles. There was some asymmetry of the face. One can thus see that the nerves involved were probably the fifth, sixth, seventh and eighth cervical and the first dorsal.

Treatments.—A brace was applied, and massage and careful exercises were begun. The boy was very intelligent, and cooperated in every way. This course was followed for three months with very little improvement. The patient was then admitted to the hospital and operated on by Dr. A. S. Taylor and myself, Oct. 29, 1920. At the operation, Sever's tenotomy was done, cutting only the pectoralis major. The shoulder was then released. There was hooking of the coracoid process, and that was removed subperiosteally. The plexus was then exposed, revealing that the fifth and sixth cervical nerves were torn off at the lower end of their junction; the seventh cervical nerve was torn off almost completely just where it entered the plexus; the eighth cervical and first dorsal nerves were not damaged, but were surrounded by heavy scar tissue.

Operation.—The distal ends of the fifth, sixth and seventh nerves were dissected, and sutured end to end with chromic catgut. The scar tissue surrounding the eighth cervical and first dorsal nerves was removed and the nerves were freely dissected.

After-Treatment.—The hand was put back in the brace, but the abduction was increased. The wounds healed by first intention.

November 20, massage and exercises were begun. The child improved immensely. The only deficiency left was supination of the forearm (Fig. 9).

Jan. 19, 1923, Dr. Taylor and I performed a tenotomy of the pronator radii teres.

Comment.—This patient illustrates that there was at birth a distinct tear of the fifth, sixth and seventh cervical nerves and probably a tear of the sheath of eighth cervical and first dorsal. He received orthopedic treatments for a while, but had not improved enough. After the nerve operation, the improvement was marked. Would it not be better to operate at an earlier age than 8 years? In general, if orthopedic treatments fail, plexus operation should be resorted to.

CASE 5.—*History.*—Louis S., aged 6 when seen, showed a distinct paralysis of the right hand upper type, with marked contraction of the pectoralis major.

Oct. 29, 1920, a Sever operation was performed, cutting the pectoralis major, and also removing the coracoid process subperiosteally. The child made a perfect recovery in one year.

Comment.—This patient demonstrates the excellent results that one can obtain by merely loosening the contracted shoulder muscles according to Sever's method.

CONCLUSIONS

1. Obstetric brachial paralysis is due to stretching or tearing of the cervical roots of the brachial plexus.

2. It is almost always associated with a difficult labor; in many instances, forceps having been used.

3. The condition occurs in boys as frequently as in girls. The right side is more affected than the left. Affection of both arms is very infrequent.

4. The upper arm type is due to injury of the suprascapular, and fifth and sixth cervical nerves. It is much more frequent than the lower arm type.

5. The whole or lower arm type is due to injury of the entire plexus.

6. Vertex presentation shows the larger percentage of occurrences of both types of cases.

7. Improper management of the shoulder is responsible for many cases; hence they may be prevented by the obstetrician.

8. If these cases are treated early and properly, one may expect in the mild cases a good recovery in three or four months.

9. The more severe cases will require about six or seven months for a complete recovery.

10. Nerve operations are indicated if no advance is made in four months. After that period, if sufficient improvement is noticed one may wait four months more, provided, of course, proper orthopedic treatments are continued.

11. The shoulder should immediately be put up in a splint or brace to prevent stretching of the paralyzed muscles and contracture of the unopposed muscles.

12. The support must be kept up for a very long time, eight or nine months, as deformities may occur. Of course, massage and exercises are begun early.

13. Even in the whole or the lower type, one may try conservative treatments for a while and then resort to a plexus operation. The result is not so discouraging as some textbooks would lead us to believe.

14. The deformity at the shoulder, viz., the adduction and internal rotation, can easily be corrected by a tenotomy.

15. The pronation of the forearm can be corrected by a muscle transplantation.

16. A patient suffering from this affection should be under proper observation at least till the age of 10 years, as slight deformity may present itself.

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THE USE OF ARSPHENAMIN AND ITS DERIVATIVES ADMINISTERED BY RECTUM

A CLINICAL STUDY *

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As early as 1912, Schamberg, Kolmer and Raiziss [1] reported the results of a series of experimental studies on the administration of arsphenamin (salvarsan) by mouth to animals and man. In their work it was definitely demonstrated that arsphenamin (arsenobenzol) is absorbed into the blood following such administration: "By the fact that a distinct destructive influence on the trypanosomes in the blood of experimentally infected animals is exerted, evidences that such absorption takes place." They also state that about one-tenth the dose required in solution by mouth produces an equivalent effect intravenously, and that it may be given in doses of 30 mg. three times a day without producing any disturbing symptoms except mild digestive distress. However, the oral administration of arsphenamin exerts a much less vigorous curative effect on the lesions of syphilis than when given intravenously. They concluded it less advisable to give arsphenamin by mouth because the intravenous and intramuscular avenues are more efficient. Although the toxic symptoms produced by arsphenamin given by mouth are very slight, Schamberg, Kolmer and Raiziss felt that they could not recommend this method because "the therapeutic influence is far too feeble to warrant this route becoming a routine measure in the therapy of syphilis."

Along the same line as the works of Schamberg, Kolmer and Raiziss, Bogrow,[2] in 1912, and a number of investigators have reported their observation following the administration of arsphenamin or its derivatives by rectum. The early workers, especially those of the French school, were enthusiastic over the results, and even more recently one finds sporadic instances in the literature tending to confirm their findings. While Bogrow and several French clinicians reported encouraging results following its use in suppositories, Benoit,[3] who devised a method of administration in enemas also commented favorably, judging by the Wassermann test. The latter, however, admits the intravenous route of administration to be more efficient. In a communication to the Société de pathologie exotique, Brouchard [4] reported the cure of thirteen cases of yaws in children, by the use of neo-arsphenamin (novarsenobenzol) given by enemas. Azemar of Toulouse [5] attempted to compare the efficiency of the intrarectal method with the intravenous route by estimating the quantity of arsenic excreted in the urine at certain intervals after the administration of the drug. He concluded that the elimination of arsenic by the urine after intrarectal use was not as great, as prolonged or as rapid as after intravenous injection. After reporting some favorable results, he commended this method for its simplicity.

The most scientific investigation was conducted by Mehrtens.[6] In his research, a careful comparative estimate of the quantity of arsenic in the blood, urine and spinal fluid was made. The amounts of arsenic in the blood and spinal fluid were found to be too small to act as criteria. As previously determined by Azemar, he also found a greater quantity of arsenic excreted in the urine after large doses of arsphenamin administered by enemas than following the usual intravenous dose. Since this experimentation was carried out in cases of cerebrospinal syphilis, and because other forms of therapy were used concomitantly, no unbiased clinical conclusion can be drawn from his work.

Mandrachia [7] reported a number of cases of syphilis which improved markedly after intrarectal dosage of arsphenamin. After reviewing the history of this form of therapy, he concluded that the administration of arsphenamin by retention enemas is a successful and practical method of giving this powerful drug, and therefore the method demands a place in the therapy of syphilis. He also quoted Boyd and Joseph,[8] who asserted that the results obtained by administration by rectum were just as good as those obtained when given by the intravenous route. The manufacturers of a preparation of arsphenamin to be given by rectum refer to the work done by these men as evidence for the efficacy of their product. The advantages claimed for this method by most of its advocates may be summed up as: (1) ease of administration, especially in children and those with difficult veins; (2) absence of reaction and other untoward effects; (3) the contention that it offers at least the same curative value as the intravenous route (Boyd and Joseph). However, as the men quoted herein used other forms of antisyphilitic therapy in conjunction with the method which they advocate, their conclusions are liable to serious criticism, for the rôle played by any one drug could not be accurately estimated.

For obvious reasons, most writers stress the point of the selection of infants for the intrarectal method of giving arsphenamin. Consequently, a number of children with active manifestations of congenital syphi-

* This work was done under a grant from the Council on Pharmacy and Chemistry of the American Medical Association.

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1. Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: The Administration of Arsenobenzol by Mouth, J. A. M. A. **67**: 1919 (Dec. 23) 1916. Kolmer, J. A., and Schamberg, J. F.: J. Exper. Med. **15**, 1912, No. 5.

2. Bogrow, S. L.: Berl. klin. Wchnschr. **49**: 109 (Jan. 15) 1912.

3. Benoit: J. de méd. de Paris, Jan. 24, 1914.

4. Brouchard: Communication to Société de pathologie exotique, May 14, 1913.

5. Azemar: Ann. de dermat. et de syph. **7**: 14, 1918-1919.

6. Mehrtens, H. G.: Rectal Injection of Massive Doses of Neo-Arsphenamin, J. A. M. A. **76**: 574 (Feb. 26) 1921.

7. Mandrachia, J. L.: M. Rec. **97**: 144 (Jan. 24) 1920.

8. Boyd, A. S., and Joseph, Morris: Intrarectal Administration of Arsphenamin, J. A. M. A. **71**: 521 (April 17) 1918.

lis were selected for investigation. In all instances arsphenamin, alkalized in the usual manner, was given by enteroclysis following a cleansing enema. The dose was three times the usual intravenous amount of 0.01 gm. per kilogram of body weight, administered in 100 c.c. of distilled water. Practically complete retention of the solution was effected by the addition of 3 or 4 drops of tincture of opium.

No reactions were noted. The ensuing reports will serve as examples to show that the beneficial results on the lesions of manifest congenital syphilis were too feeble to be demonstrated clinically.

REPORT OF CASES

CASE 1.—G. B., a white boy, aged 8 weeks, weighing 3 kg., was admitted to the hospital, March 29, 1919, because of snuffles for the preceding six weeks. The history obtained from the mother was that the baby had a rash at the age of 2 weeks, with sores in the mouth. The mother had had three miscarriages, and one child, aged 3, was under treatment for congenital syphilis. The patient was fairly well developed, and undernourished, and had very marked snuffles. There was no cutaneous eruption except shiny, dull red, characteristic, desquamating areas on the palms and soles such as are seen in congenital syphilis. The blood Wassermann test on both mother and infant was four plus. The baby was given five administrations of arsphenamin, 0.08 gm., by proctoclysis, at five day intervals. April 23, four days after the fifth treatment, there was no change in the snuffles or in the condition of the palms and soles. Consequently, the child was given 0.03 gm. of neo-arsphenamin intravenously by fontanel. One week later the snuffles were markedly improved and the skin of the palms and soles was almost normal. After the third injection the snuffles had entirely disappeared.

CASE 2.—D. M., a white boy, aged 2 months, was transferred from the obstetric to the dermatologic service, May 6, 1919, a diagnosis of congenital syphilis having been established by the routine Wassermann test on mother and child. This child received three weekly administrations, 0.05, 0.06 and 0.07 gm. of arsphenamin by proctoclysis. While under this therapy he developed a generalized, papular syphilid which was bullous in places, and a marked desquamation on the palms and soles, and snuffles. The condition cleared up promptly after three weekly injections of neo-arsphenamin administered intravenously.

These negative results of rectal injection of arsphenamin are so entirely at variance with the claims made for a certain proprietary preparation that it seemed advisable also to try the latter directly. We refer to a preparation of arsphenamin known as "Supsalvs," which is manufactured and sold by the Anglo-French Drug Company of New York.[9] This preparation is put up in the form of a suppository, and is widely advertised by that company as yielding "excellent results, absolutely comparable with those obtained by the intravenous method," and indicated in "specific infections in all stages." In the administration of "Supsalvs," the directions furnished by the manufacturers were closely followed. The treatments were given every other day, preceded by a cleansing enema, and later increased to one or two "Supsalvs" daily, which was even more than the company itself recommends.

CASE 3.—E. S., a white man, aged 24, was admitted to the hospital, Nov. 6, 1922, with a single penile lesion on which he had used some local medication. The dark-field examination and the blood Wassermann reaction were negative. He was given hot saline soaks, and dark-field examinations were made twice daily until the spirochetes were found. The spinal fluid showed four cells and a negative Wassermann reaction, November 11. The blood Wassermann reaction was again negative. The patient was given one "Supsalvs," preceded by a cleansing enema, every other day until four suppositories had been used. He was then given one "Supsalvs" every day until four more suppositories had been used. During this time the penile lesion steadily increased in size, became quite painful, and daily dark-field examinations revealed large numbers of spirochetes present at every examination. The patient also developed a very definite generalized miliary papular syphilid of follicular type. The dose was then increased to two "Supsalvs" daily for a period of six days. During this time the daily dark-field examinations showed large numbers of the organisms, although there was a slight improvement in the appearance of the local lesion. At the end of this treatment the syphilid was just as marked and as generalized as previously. The spinal fluid showed a cell count of 10 lymphocytes, with a Wassermann report of one plus in the 0.4 dilution, and a gold chlorid curve of 2121110000. November 28, the treatment was changed to daily mercury inunctions and an intravenous injection of 0.6 gm. of neo-arsphenamin, the intravenous injection of neo-arsphenamin being repeated, December 2 and December 5. The dark-field examination was negative, December 2, four days after the first intravenous injection of neo-arsphenamin. December 4, after two intravenous injections of neo-arsphenamin and six mercury rubs, the follicular syphilid had entirely disappeared, and the primary lesion showed marked improvement. Two days later, December 6, after three intravenous injections of neo-arsphenamin and eight mercury rubs, the penile lesion had completely healed.

CASE 4.—E. M., a white man, aged 21, was admitted, November 9, 1922, with a definite macular syphilid, condylomata lata about the anus and on the scrotum, glans penis and prepuce, and a mucous patch on the left tonsil. The blood Wassermann reaction was four plus, the spinal fluid Wassermann was negative, and the cell count on the spinal fluid showed one lymphocyte per cubic millimeter. Dark-field examination from the condylomata lata and the moist papules showed many spirochetes. The patient was given one "Supsalvs" every other day until four of the suppositories had been used. Then he was given one "Supsalvs" daily for four days and then two "Supsalvs" daily for six days. November 17, after four "Supsalvs," the moist papules on the right side of the scrotum had entirely dried up, but a new moist papule had developed on the left side of the scrotum. The macular rash showed no change. Daily dark-field examinations revealed many organisms from all moist lesions. November 24, after he had used ten "Supsalvs," the moist papules and macular syphilid showed no further change, but the condylomata lata had increased 50 per cent. in size, becoming so painful that the patient refused to use further suppositories. Warm sitz baths enabled the patient to continue the "Supsalvs" treatment. November 27, after using eighteen "Supsalvs" over a period of seventeen days, the moist papules on the scrotum and penis had entirely dried up and the condylomata lata had decreased slightly in size since the suppositories were used twice a day. There had been no change in the macular eruption during the treatment. The mucous patch on the left tonsil was slightly larger than when the patient was admitted to the hospital, and he had developed a new mucous patch on the hard palate. Daily dark-field examination on serum from the condylomata lata remained positive for spirochetes throughout the treatment. The blood Wassermann reaction was still four plus; the spinal fluid Wassermann reaction was negative, but the spinal fluid now showed 21 lymphocytes per cubic millimeter. The "Supsalvs" were discontinued and the patient was given daily mercurial inunctions. He was given an intravenous injection of 0.6 gm. of neo-arsphenamin, December 9, which was repeated, December 12 and December 16. December 13, after two injections of neo-arsphenamin, the mucous patches of the tonsils and hard palate, the moist papules of the penis, and the condylomata lata around the anus had entirely disappeared.

CASE 5.—A. S., a white man, aged 26, was admitted, Nov. 21, 1922, with secondary syphilis, the scar of a periurethral chancre, moist papules on the scrotum, and a small papular

9. Supsalvs Not Admitted to N. N. R., J. A. M. A. **75**: 1219 (Oct. 30) 1920.

syphilid of follicular type of well generalized distribution. The blood Wassermann reaction was four plus, and the spinal fluid showed a cell count of 2 lymphocytes per cubic millimeter and gave a negative Wassermann reaction. The patient was given a "Supsalvs" daily from November 22 to November 26, making a total of four, and two "Supsalvs" daily from November 27 to December 4, a total of twenty suppositories in a period of thirteen days. At the end of this treatment the induration about the meatus had entirely disappeared, and the moist papules on the scrotum had completely dried up, but the papular syphilid had become more generalized and thicker in distribution and considerably brighter in color, and the patient had developed a large mucous patch on the right tonsil. The blood Wassermann was still four plus. The spinal fluid showed 8 lymphosytes per cubic millimeter and still gave a negative Wassermann reaction. Intravenous injections of neo-arsphenamin, and mercury inunctions were started, and one week later, after three injections of 0.6 gm. of neo-arsphenamin and six mercury rubs, the mucous patch on the right tonsil had completely disappeared and the papular syphilid showed marked improvement.

As will be noted from these case reports, one patient showed a primary lesion of the penis with a positive dark-field examination, a negative blood Wassermann reaction and negative findings in the spinal fluid. Under the course of treatment with "Supsalvs" he developed a very definite, generalized syphilid, a two plus blood Wassermann reaction, and an increased cell count of the spinal fluid. The chancre increased in size, and numerous spirochetes were present in the local serum throughout the duration of the treatment. All lesions and systemic symptoms cleared up promptly after intravenous administration of arsphenamin was instituted.

Two patients with acute syphilis, with early secondary syphilids and moist papules of the genitalia, showed more generalized and more distinct eruptions after a course of treatment with "Supsalvs." Both patients developed mucous patches in the mouth during the treatment, and one showed a marked increase in the spinal fluid cell count at the end of the treatment. In neither case was the four plus blood Wassermann reaction influenced. One patient had condylomata lata about the anus, which became markedly larger and in which numerous spirochetes were present during the entire course of treatment. Both patients showed prompt and marked improvement, with the disappearance of spirochetes from all lesions, following intravenous arsphenamin therapy.

CONCLUSIONS

1. The clinical results obtained by the use of arsphenamin by rectum in children with acute manifestations of congenital syphilis are too feeble when compared with the intravenous or intramuscular results to warrant the consideration of this method in the treatment of congenital syphilis.

2. The absorption of arsphenamin from "Supsalvs" suppositories, even when given twice daily, to patients with primary and secondary lesions of syphilis, is not sufficient to destroy the spirochetes in the lesions or exert any noticeable favorable influence on the eruption or the course of the disease.

3. In spite of the possibilities of reaction or difficulties in administration in infants, the intravenous administration of arsphenamin should be preferred to rectal administration as being more successful and more efficient. Moreover, both neo-arsphenamin and sulpharsphenamin are now used generally by the intramuscular route in the treatment of syphilis in infants—the results being above reproach.

4. Because of the uniformly unsatisfactory progress of the disease under this form of therapy, it was deemed unjustifiable to extend it to a greater number of cases.

THE TREATMENT OF MASTITIS

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I shall discuss the etiology and pathology of mastitis only so far as they have a direct bearing on the treatment. The infecting organisms gain access to the breast either by way of the milk ducts or by way of the blood stream. The predisposing causes of mastitis are erosions or cracks of the nipples and trauma of the breasts.

The times of especial danger are (1) when the mother discharges her nurse or leaves the hospital; (2) when she begins wearing street clothes, and (3) when her milk begins to fail. When the mother discharges the nurse, she is very apt to be careless about the care of the nipples. Erosions or tiny fissures are the next step; then there is a tender mass in the breast, with possibly a chill and fever, and finally an abscess. When the mother begins to go about, one of two things may happen. She may wear a brassière that is too tight, with the breasts folded down flat against the chest wall, or the top of the corset may poke into the lower margin of the glands. In either case there is trauma and interference with the blood supply in the lower hemisphere of the breast, both very potent predisposing causes of abscess formation. The third danger period is when the milk begins to give out. The baby is strong and vigorous, and may even have teeth. He butts the breast, or gums and chews the nipple in his efforts to satisfy his hunger, and thereby engenders two predisposing causes, trauma of the breast and damage to the nipple.

Prophylactic treatment consists of common sense and cleanliness. It should start at the very beginning. In the first few days, when there is no milk in the breasts, the baby should be put to the breast for only a few minutes and at infrequent intervals, say every eight hours. This reduces the number of sore nipples at the very beginning. The cleansing care of the nipples is not often neglected at this time. Any break in the integrity of the skin covering the nipple should be attended to promptly. A word or two of instruction as to the proper way to support the breasts, from a medical standpoint, will sometimes save a lot of suffering. Finally, complemental feeding, when the breast milk begins to fail, is beneficial for both mother and child.

After the breast becomes inflamed, treatment depends on whether or not pus is present. Abortive treatment consists of rest in bed, a tight breast binder supporting the breasts up on the front of the chest, and either ice or hot water bags. I prefer the ice bag, as it has seemed to me to relieve the pain more completely.

When pus forms, it should, of course, be evacuated. Formerly, long incisions, radial to the nipple, were recommended. The after-treatment consisted of packing and irrigation, and was a fearful ordeal for the patient. The final result was a disfiguring scar that often interfered with subsequent lactation. A number of years ago,[1] I began using a stab incision, and instead

1. Rucker, M. P.: Obstructive Hyperemia as a Substitute for Irrigation and Packing in Certain Infections, Old Dominion J. Med. & Surg. **21**: 197 (Nov.) 1915.

of packing and irrigation, Bier's hyperemia. After the first treatment, the procedure is painless. There is no disfiguring scar, the breast continues to function, and, when the inflammation subsides, the baby is put back on the affected breast as if nothing had happened. This treatment seemed all that could be desired, until in 1919, Gardiner [2] reported eight cases treated by aspiration and pressure. With a fine needle he cocainizes a track down to the abscess cavity, and with a 17 gage needle he aspirates the pus. A pressure binder is then applied. This procedure is repeated through the original puncture every four to six hours until no more fluid accumulates. In a subsequent communication, Gardiner [3] recommends that a basketball bladder be placed over the breast that has been covered with gauze and a sterile towel, and held in place by a 3 inch roller bandage. The desired pressure is obtained by inflating the bladder.

The Gardiner treatment shortens the course of the disease considerably. Small abscesses can be made to heal within a week. In a considerable number of the cases that I have treated in this way, a small sinus forms along the needle track after two or three days. When this occurs, I have resorted to Bier's hyperemia to empty the abscess cavity, believing that it not only empties the cavity better, but also washes it out with fresh blood, and collapses its walls. The pressure binder is kept up just as Gardiner recommends. More recently, after making the puncture and aspirating the pus, I have filled the cavity with a 2 per cent. solution of mercurochrome-220 soluble, and then aspirated that before applying the pressure binder.

ILLUSTRATIVE CASES

CASE 1.—A secundipara, aged 33, a society woman, sent for me on account of a pain in her right breast of four days' duration. She did not remember any blow or injury to the breast. The patient felt well in every other way, had fully recovered from her confinement, and had begun to menstruate regularly. There was no fever. The breasts were large and soft except along their lower borders, where there was definite caking. The mass in the right breast was the larger, and was tender. The axillary glands were not palpable. The patient had been wearing a very tight brassière, that folded the breasts flat against the chest. The pain and cakes disappeared promptly when a supporting binder was substituted for the brassière.

CASE 2.—A secundipara, who had had a low grade of nasal infection for several years, came for final examination ten weeks after delivery, and gave a history of being weak, and of tiring easily. She did not give enough milk for her baby, and had resorted to supplemental feeding. Two weeks before, she had a tender red spot in the right breast, and some fever. This subsided in two days, with rest in bed and ice bags to the breast. Physical examination was negative except for a retroversion of the uterus. Two months later, the uterus was in good position. A week after the last visit to my office, the patient had a chill and a temperature of 103. In the upper and outer quadrant of the left breast there was a small, tender mass. The temperature and pain in the breast subsided simultaneously under treatment with ice bags, breast binder and rest in bed. No cracks or fissures of the nipples could be discovered. I present this case as an example of hematogenous infection, probably from the nasal condition, with a failing milk production as a predisposing factor.

CASE 3.—A tertipara, aged 22, who had a superabundance of milk, undertook to keep a premature baby alive with the excess. She was in the habit of getting the milk with a breast pump after her own baby had finished nursing, and sending it to a nearby hospital for the premature baby. As her own baby grew and took more milk, she became more energetic with the breast pump. The patient presented herself at my office, November 28, sixty-six days after her confinement, with a tender lump in the upper and inner quadrant of the right breast. She had noticed the lump several days before, but now it was throbbing, and showed red streaks extending toward the axilla. The mass was superficial, hard and tender, but did not fluctuate. December 3, the breast was again paining her. This time there was fluctuation, and a few drops of pus were aspirated. The cavity was washed with 2 per cent. mercurochrome solution, and a pressure binder was applied. The patient had a chill in the night, and the next day about a dram of pink pus was aspirated with a needle. December 5, the patient reported that the breast had pained her very little. The induration had subsided, and the abscess was discharging through the puncture wound. The breast was treated with a Klapp cup, and about 2 drams of pus escaped. This treatment was continued daily. December 7, milk flowed from the sinus, and December 9, the sinus was entirely healed, leaving a small cake. December 12, the breast was again paining her. A fluctuating mass was found close by, but peripheral to the former lesion. This was aspirated, and a dram of pus and milk was obtained. The cavity was washed with mercurochrome solution, and treated with pressure. December 13, 14 and 15, the breast was treated with Bier's hyperemia. December 17 there was scarcely any discharge, and the next day the sinus was entirely healed, leaving only a small mass of induration. There was no tenderness, and the milk flow was abundant.

Medical Arts Building.

2. Gardiner, J. P.: Aspiration and Pressure Treatment of Unopened Mammary Abscesses, Am. J. Obst. **80**: 506 (Nov) 1919.
3. Gardiner, J. P.: Further Experiences with a New Method of Treating Mammary Abscesses, Am. J. Obst. & Gynec. **2**: 644 (Dec.) 1921.

THE BOTANY OF SOUTHWEST TEXAS, WITH REFERENCE TO HAY-FEVER AND ASTHMA

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This article is the result of a year's study of glycerin pollen plates exposed twenty-four hours, later stained with compound solution of iodin, and examined twice each week. The plates were exposed in both the residence and business districts of San Antonio; in addition, a number of plates have been studied from Houston, Dallas, Corpus Christi and smaller cities nearer San Antonio. The actual field botany work and identification of specimens were done in connection with Miss Ellen Schulz, professor of botany in the San Antonio high schools, and Mr. Wallace Butler of the local U. S. Agricultural Experimental Station.

GRASSES

Grasses of numerous species in and about San Antonio grow profusely and constitute, by all odds, the most important pollen factor locally in hay-fever and asthma. The earliest pollen of the year found in the air was that of winter grass (*Bromus unioloides*), which has a short pollination season of approximately six weeks from about March 1 to April 15, and is comparatively unimportant from a clinical point of view. The next grass to pollinate, about April 1, is Bermuda grass (*Capriola dactylon*), our most important factor, followed ten days later by Johnson grass (*Andropogon halapensis*). The larger size of the pollen of the latter makes differential identification easy. These two grasses have been selected as types, and further grass pollen differentiation not gone into. Otherwise our local grass problem would be practically unsolvable. Also further analysis along this line is unnecessary, as the hay-fever reactions of all these grasses are appar-

ently identical, differing only in degree. Little barley (*Hordeum pusillum*) and oats (*Avena sativa*) probably rank next in abundance. Timothy (*Phleum pratense*), red-top (*Agrostis alba*) and blue grass (*Poa pratensis*) of the North and East do not grow in Texas, and wheat (*Triticum sativum*) and rice (*Oryza sativa*) are only local factors.

The height of grass pollination here comes in two waves. The first covers late April, May and June, the usual months of spring hay-fever elsewhere. This is followed by a moderate drop during six weeks in July and August, which here, as a rule, is a period of protracted heat, with few or no showers. During this period, weed growth and pollination are greatly retarded. Ordinarily, heavy rains fall in this section of the world late in August or early September. This rainfall, lasting for from ten days to two weeks, off and on, is followed by another hot spell of several weeks' duration, persisting until the middle of October. Immediately following the early September rains, weed growth becomes exceedingly profuse, and it is at this time that pollen plates attain their maximum content of grass as well as ragweed pollen. The second peak then remains rather constant until about November 15, when a gradual decline in both kinds of pollen begins. However, grass pollination still remains moderately profuse until our first heavy frost or freeze, which seldom occurs before Christmas, and which did not come last year until after the first week in January.

As clinical corroboration of these statements, our first patient of the year with spring grass hay-fever presented himself for treatment, April 20, 1923; our last patient of the preceding year presented himself for initial treatment, Jan. 6, 1923, and at this writing, Dec. 20, 1923, a few hypersensitive grass asthma and hay-fever patients are still suffering, and our plates still show grass pollen to a moderate degree, along with a few ragweed pollen grains. Our field records of this date last year show Johnson and Bermuda grass still pollinating from a light to a moderate extent.

This prolonged nine month, two wave grass season gives two rather characteristic types of hay-fever. The early spring cases are, of course, as elsewhere, of the pure grass type and are not numerous. By far the greater number of our pollen hay-fever and asthma patients suffer in both spring and fall, and give the usual diagnostic skin reactions to both grasses and ragweeds. My records for the last year show only two pure ragweed fall hay-fever cases without added grass reactions and sensitiveness. Seasonal autumnal pure grass cases of hay-fever and asthma without ragweed sensitiveness do exist here, though not nearly as numerous as the common combined type, usually consisting of grasses, ragweeds and amaranths. This is a decidedly important clinical point. Ragweed immunization treatment as is commonly performed elsewhere, on the assumption of the usual ragweed etiology of fall hay-fever, locally proves absolutely unsuccessful unless the added grass factor is taken into consideration.

RAGWEEDS

The ragweeds here, both giant (*Ambrosia trifida*) and small (*Ambrosia psilostachya*), are moderately profuse, but, owing to the dry months of late July and August, they do not pollinate to any extent until the middle of September. For two months pollination is at its height, but in San Antonio proper during that period, ragweed pollen never exists on plates to any greater degree than does grass. This is not quite true of plates from North Texas, where ragweed granules predominate but never to the complete exclusion of grass. Usually plates from that section in September and October contain about one grass pollen to two of ragweed. As mentioned before, ragweed *alone* is seldom a cause of fall hay-fever in this section. Beginning, however, from 30 to 40 miles east of San Antonio, where there is a greater rainfall, both ragweeds are much more profuse. It is possible that the addition of the ragweed pollen in the fall is the additional factor overcoming the natural immunity of grass hay-fever patients who would otherwise escape symptoms at that time. Local cases of asthma due to ragweed alone, I have never seen. Cases originating as such in the North or elsewhere usually take on the perennial form of the disease with added grass sensitization before the patients come here. Though frosts or freezes do not occur here until mid-December or early January, the ragweeds die out in late November, the giant form being the first to go.

In this connection, our commonest local empty lot weed, frequently called "ragweed," is actually false wormwood (*Parthenium hysterophorus*). While, like the ragweeds, this weed also is a member of the *Compositae* family, I have never been able to demonstrate a case due to its influence. It blooms perennially, but its pollen is very tenacious and comparatively difficult to scrape off to secure for examination purposes. Scheppegrell[1] states that the pollen grains have the peculiarity of cohering in bunches of a hundred or more, which prevents them from traversing more than a few feet except in winds of great velocity. Like goldenrod, it is a factor by intentional rather than accidental unavoidable contact.

COMPARATIVE IMPORTANCE OF RAGWEED AND GRASSES IN FALL HAY-FEVER AND ASTHMA

In discussing the comparative unimportance locally of ragweeds in hay-fever and asthma, it must certainly be admitted that the ragweeds do constitute a more important factor in central and northern Texas. But even there, as a rule, immunization against ragweeds as a cause of fall hay-fever, done by highly competent men, has been far from uniformly successful, owing, in my opinion, to failure to take into consideration the additional grass factor.[2] In Houston this year,[3] even poorer results were secured, though additional immunization was performed against marsh elder (*Iva ciliata*), the growth of which in and around Houston is extremely profuse. The grass factor there also as a cause of fall hay-fever was not considered. A few plates studied this fall from Houston by the courtesy of Dr. A. E. Greer showed abundant grass pollen as well as *Compositae* pollen.

Just how wide or important is the northern range of these fall grasses, I am unable to state, as my investigations do not go beyond northern Texas. Certainly, on a recent trip through southern Louisiana (Nov. 21, 1923), numerous species of grasses were growing profusely and pollinating abundantly.

According to Mr. Butler,[4] the commonest fall pollinating grasses of this section of the world are silver beard (*Andropogon argyraeus*) and species of Panicums and Paspalums, along with the almost ever present Bermuda and Johnson grasses. The grasses most com-

1. Scheppegrell, William: Personal communcation to the author.
2. Black, J. H.: Personal communication to the author.
3. Greer, A. E.: Personal communication to the author.
4. Butler, Wallace: Personal communication to the author.

monly known to the nonbotanist are, of course, Bermuda grass and Johnson grass. In this connection, C. V. Piper, agrostologist in charge of the Bureau of Plant Industry, U. S. Department of Agriculture, writes:

> Most of the species of *Andropogon* bloom in late summer or early fall. Bermuda grass blooms all through the warm season, as do many of the Paspalums. A number of the Panicums are fall bloomers, blooming now throughout the South. There are others of the native Southern grasses which are in bloom at this time of the year, that is, September and early October, and some of them indeed keep on blooming until frost.

I am inclined to believe that the overlooking of this element of fall grass pollination constitutes a decidedly important factor in the failure to secure results in autumnal hay-fever immunization work, not only locally but through the entire South. I have had untreated patients with grass hay-fever, who have gone from Texas to spend their summers in or about New York City, remain perfectly clear while there, following the close of the eastern grass pollination season, only to have their symptoms return in the fall on their homeward trip after passing Washington. In fact, one of the reasons for this study was that on previous occasions I had carefully immunized preseasonally a number of patients with fall hay-fever with ragweed pollen extract to the point of practically complete disappearance of the skin reaction to the strongest extracts. Much to my disappointment, the seasonal symptoms came on at the usual time and persisted as in previous years, uninfluenced by the ragweed immunization treatments.

AMARANTHS

Amaranth growth here in the shape of careless weed (*Amaranthus spinosus*) is moderately profuse. Its pollination is rather heavy in midsummer, frequently at that time exceeding the grass pollens. In fact, in the downtown section of San Antonio in August, Amaranth is our commonest pollen. It disappears from the air late in September. I have never seen a case reacting to Amaranth alone.

CHENOPODS

Of the chenopod weeds, the common lamb's quarters (*Chenopodium album*), and Russian thistle (*Salsola pestifer*) do not grow here. The only important chenopod is taken up under the next heading.

CULTIVATED PLANTS

Chief among the cultivated plants as a local neighborhood hay-fever cause is a chenopod, the Mexican fire bush or summer cypress (*Kochia trichophylla*), which is fairly common. It starts pollinating in September and finishes in early November, when the bush turns red. Another local factor, also a chenopod, is the Madeira vine (*Boussingaultia baselloides*). Queen's crown (*Antigonon leptopus*), a vine that blooms profusely from early summer until late fall, is a secondary source of annoyance to some persons on intimate contact.

When hay-fever or asthma is ascribed to some insect-pollinated plant in this end of the world, examination microscopically of the suspected offender will reveal the presence of abundant Bermuda or Johnson grass, ragweed or Amaranth pollen adherent but easily shaken off.

TREES

In this semiarid section of the country, and in fact also all over the rainier farming sections of this state, tree growth is comparatively scanty, and cases of hay-fever due to trees are correspondingly uncommon. Pollination is limited to a few weeks of early spring. One exception is an elm (*Ulmus crassifolia*) that pollinates in September. Another exception is the mountain cedar (*Juniperus sabinoides*), which pollinates during the months of December, January, February and early March, and is a great annoyance in and around Austin, Texas. The trees give off an immense amount of pollen, appearing to be completely covered with dust when in full pollination. There is but little natural growth of this tree within 17 miles of San Antonio. However, even in San Antonio we see every year during these months a number of cases of hay-fever due to this pollen. It is easily identified by the plates. Some is air borne from local natural growth, and the rest is the result of the use of the tree as a Christmas decoration.

MINOR CAUSES

Marsh elder (*Iva ciliata*) is exceedingly common in the neighborhood of Houston. It does not grow in or near San Antonio. Cockle burs (*Xanthium*) and docks (*Rumex*) are not profuse enough to be factors. The sages (*Artemisiae*) do not grow this far east. Cotton pollen is too scarce and heavy to be a factor in hay-fever, but the meal from the seed is at times highly antigenic. Corn pollen is a very minor factor.

CONCLUSIONS

The most interesting point revealed by this local study is the prolonged duration of the local grass pollination season, and the relatively lesser importance of the ragweeds per se. It is also interesting to note the value of the pollen plates in this work. If daily examinations are made of the pollen content of the air during seasonal immunization treatments, not only will local causes of hay-fever be uncovered that would otherwise pass unnoticed, but also many periods of freedom from symptoms during the treatment will be found due to relative freedom of the air temporarily from pollen, owing to atmospheric conditions, and certain "reactions" ascribed to treatment will be found due to unsuspected pollen presence. In fact, without constant pollen plates and a knowledge of the local pollinization peculiarities they uncover, hay-fever or asthma pollen immunization work simply cannot be satisfactorily performed. I am also inclined to believe that the grasses exist as factors in autumnal hay-fever to a considerably greater extent north of here than is generally recognized. This may account for some of the failures in immunization work in fall hay-fever in which only the *Compositae* (ragweeds) have been heretofore considered in this connection.

NOTE.—Since this article was written, as illustrating the value of pollen plates in this work, it might be of interest to note that our heaviest pollen shower of the entire year 1923 (grass and cedar) occurred during a high wind, December 31, the day before our first frost, annoying a number of our patients sensitive to these pollens.

Moore Building.

Promoting Health Legislation.—The shaping of health legislation has two aspects—the positive and the negative. Health workers are compelled to keep in mind, not only the preparation of bills which they believe may contribute to the improvement of the public health of their community, but also must be prepared to meet any attempts to defeat the gains previously made.—R. G. Paterson: *Hospital Social Service* **9**:18 (Jan.) 1924.

CONVALESCENT SERUM IN THE TREATMENT OF ERYSIPELAS

A REPORT OF ITS USE AT THE PROVIDENCE CITY HOSPITAL

HARMON P. B. JORDAN, M.D.
AND
CECIL C. DUSTIN, M.D.
PROVIDENCE, R. I.

Convalescent erysipelas serum was used at the Providence City Hospital for the first time, Oct. 27, 1919. The result in the first case was so striking that this treatment has been employed in suitable cases whenever serum has been available.

Owing to the lack of literature on the subject, it seems advisable to give an impartial report of its use and preparation:

PREPARATION OF CONVALESCENT ERYSIPELAS SERUM

Convalescent erpsipelas serum is sterile serum from the blood of patients convalescing from uncomplicated erysipelas. The blood is collected in a wide mouth bottle by means of a simple suction apparatus made from a two hole stopper, two L shaped glass tubes, and two short sections of rubber tubing. A large intravenous needle is fitted to one of the rubber tubes by means of an adapter. The whole apparatus is autoclaved before using, and the blood and serum are handled, so far as practical, with sterile apparatus. One of the arm veins is used, and not more than 200 c.c. of blood is taken even from large adults.

Patients who have had a normal temperature for at least a week, and who show practically complete clinical recovery without complications, are chosen. Only patients wtih negative blood Wassermann reactions have been selected.

The blood is allowed to stand in the icebox for from thirty-six to forty-eight hours. At the end of this time the clot is firm and the clear serum can be poured or pipetted off without the admixture of many red cells. The serum is centrifugated in sterile tubes at high speed to separate the few suspended red cells. The serum is then transferred to sterile ampules of suitable size, and sealed. A further yield of serum can be obtained by squeezing the clot, and centrifugating to separate the red cells. This serum is always more or less discolored by hemolysis, but it is as effective as the clear serum. No preservative is added. The sealed ampules are heated to 56 C. for one hour on three consecutive days. Serum prepared in this way has been kept in the icebox for months without losing its potency. Ampules have been opened and cultures have been found sterile. It is advisable, however, in case serum is to be left for any length of time, to add tricresol, 0.3 or 0.4 per cent., as a preservative.

SELECTION OF CASES

Because of the difficulty in keeping a sufficient supply of convalescent erysipelas serum on hand, it has been used only in selected cases. The patients have been those seen early in the disease, those showing an extension of the process after a period of improvement, or those who have been severely toxic. Practically all the serum has been given intramuscularly, as intravenous serum therapy is not in favor at this hospital. The maximum dose has been 40 c.c., the minimum 10 c.c., and the average, 14.5 c.c. The dose has been varied according to the size of the patient and the clinical condition. From 15 to 20 c.c. seems a fair dose for the average adult with no complications.

Eighteen patients have been treated. Of these, three died, two showed questionable improvement, and thirteen showed very decided improvement. Only cases in which a marked improvement was shown in the temperature chart and in the clinical aspect have been counted as successful.

The three patients who died were moribund on admission to the hospital:

CASE 1.—An infant, aged 3 weeks, had uncomplicated erysipelas of the body. Ten cubic centimeters of convalescent erysipelas serum was given. The patient died within twenty-four hours after admission.

CASE 2.—A man, aged 50, who was a chronic alcoholic, and on the verge of delirium tremens on admission, showed very severe involvement of the left half of the face and neck, with marked edema of the neck. He was irrational, and showed only a slight temperature reaction to what was obviously an overwhelming infection. Forty cubic centimeters of convalescent erysipelas serum was given. The patient continued to become worse, and died eight hours after the administration of the serum, on the third day in the hospital.

CASE 3.—A girl, aged 3 months, had erysipelas complicated by nasal diphtheria. Ten cubic centimeters of serum was given on the third day in the hospital. The patient died about eighteen hours later.

It will be seen that in two of these three deaths, the complicating conditions might well have altered the course of the disease.

Of the cases that showed marked improvement, the following are typical:

CASE 4.—A girl, aged 30 days, admitted to the hospital with her mother, who had scarlet fever, appeared normal. On the twenty-ninth day in the hospital, the temperature rose to 103 F. There was a small, red, indurated area on the right buttock, which rapidly spread, involving both buttocks, the vulva and the groins. The process rapidly spread up into the back, where it took on the typical appearance of erysipelas. At 3:30 p. m., the temperature was 105.4; pulse, 170; respiration, 80. The prognosis seemed extremely bad. Ten cubic centimeters of convalescent erysipelas serum was given, and at 11 p. m., the temperature still being 105, 12 c.c. of serum was given. In twenty-four hours the temperature, pulse and respirations were normal. The process had not extended any farther, the color had faded considerably, and the edema of the involved parts had disappeared. During the remaining five days in the hospital the infant took its feeding well and gained an average of 2 ounces a day. It was discharged well.

To those observing the case, the change in the condition of the infant, after the administration of the convalescent serum, was miraculous.

CASE 5.—A housewife, aged 36, admitted to the hospital on the third day of her illness, had erysipelas of the skin of the nose and both cheeks. The onset had been accompanied by pain, burning, and swelling of the skin over the nose and cheeks. She had had several chills. The temperature was 104.6. The patient was obviously very sick and uncomfortable. The urine showed a slight trace of albumin. Twenty cubic centimeters of convalescent erysipelas serum was given, and iced magnesium sulphate solution compresses were applied locally. In thirty-six hours the temperature, pulse and respirations were normal, and the local condition showed marked improvement. The patient was discharged on the tenth day, well.

This case is reported because it seems to be quite typical of the reaction of the serum in adults with uncomplicated facial erysipelas.

CASE 6.—A physician, admitted on the sixth day of the disease, showed an extensive involvement of the right side of the face and neck. The temperature was 103.8, and he was obviously quite sick. He was given 30 c.c. of convalescent

erysipelas serum intramuscularly. In one and one-half hours he stated that he noted a definite improvement of the "stiffness" of the face, and he fell asleep. On waking up a few hours later, he said that he felt normal. In twenty-four hours after the serum was given, the temperature had dropped to normal. The patient was discharged well on the ninth day.

There have been three cases, reckoned as successes, in which there was no particular improvement until the third or fourth day after the serum was given. At this time the temperature dropped to normal, and marked clinical improvement took place. One of these cases was complicated by a thrombosis of the external saphenous vein of the left leg. The other two were uncomplicated cases of facial erysipelas.

In all these cases, the clinical improvement occurred earlier in the course of the disease than would be expected, in the experience of this hospital, had not convalescent erysipelas serum been given.

In a few instances, convalescent erysipelas serum has been supplied to dangerously sick patients outside the hospital. Their attending physicians have invariably noted marked improvement.

There are two cases that have been classed as failures or as questionable results:

CASE 7.—An elderly woman with facial erysipelas was also suffering from a moderately severe myocarditis. She showed no temperature reaction at any time. The convalescent serum was given on the second day of the disease, and no marked improvement was noted. However, she had recovered from the disease on the ninth day.

CASE 8.—A man, aged 50, who entered the hospital on the sixth day of the disease, had infection only of the skin immediately surrounding the right ear. On the eighth day of the disease the temperature began to drop by lysis. On the eleventh day serum was given, but it did not alter the general trend of the temperature curve. The patient was discharged well on the eighteenth day.

It is obvious that no conclusions can be drawn from this case.

In considering the value of this particular therapeutic measure, it must be kept in mind that all the patients treated (*a*) were seen early in the disease; (*b*) showed an extension of the disease after a period of improvement, or (*c*) were severely toxic. The majority of the cases belong in the latter class.

SUMMARY

Convalescent erysipelas serum is simply the sterile serum obtained from the whole blood of patients convalescing from uncomplicated erysipelas.

The serum may be kept for months in sterile ampules, at icebox temperature, without losing its potency.

The serum has been used in eighteen cases, sixteen of which were severe infections. There were three deaths, these patients having been practically moribund on admission to the hospital.

Thirteen cases showed remarkable clinical improvement, and it seems that the improvement was unquestionably due to the use of the convalescent erysipelas serum.

Enlarged Lymph Glands Diagnostic of Tonsil Infection.—Usually when there has been definite tonsillar infection, the glands under the angle and ramus of the lower jaw are notably enlarged. This, in my opinion, is a more sure sign of tonsillar infection than the appearance of the tonsil itself. These glands are often present when no pus can be squeezed out of the tonsil, although occasionally the reverse condition is present.—H. J. Starling: *Guy's Hosp. Rep.* **73**:389 (Oct.) 1923.

Clinical Notes, Suggestions, and New Instruments

NEW FORCEPS FOR THE CYSTIC DUCT

MOSES BEHREND, M.D., PHILADELPHIA

In the removal of the gallbladder, the desirable thing is an operation in which no infected bile, if present, will have an opportunity to escape. It is often difficult with the old type of cystic duct forceps to place two side by side on a short duct. That plenty of room might be obtained when two pairs of forceps are placed adjacent to

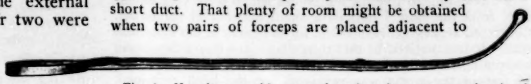

Fig. 1.—New forceps with narrow lateral surface; two may be placed side by side with plenty of room between; the bullet tip prevents injury to important structures.

each other on a very short cystic duct, the new forceps represented in Figure 1 were made narrow on the lateral surfaces, while the dorsal and ventral surfaces were made wide enough to obtain strength and resilience.

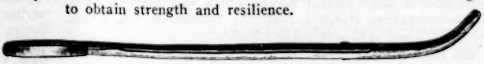

Fig. 2.—Old forceps: It is often impossible to place two side by side; the cystic duct has slipped occasionally from the distal forceps.

In the illustrations, a comparison may be made with the old forceps (Fig. 2), which were quite heavy as compared to the new type. Another feature of the new forceps is the bullet tip, which will help to prevent injury to the common duct.

1738 Pine Street.

INFESTATION WITH HYMENOLEPIS DIMINUTA (RAT TAPEWORM)*

H. E. BUTKA, M.D., LOS ANGELES

Human infestation with *Hymenolepis diminuta*, or rat tapeworm, is infrequent, only sixty-one cases having been reported, of which sixteen have been found in the United States. Ransom reviewed the subject in 1904, and the mode of transmission and life habits were recently described by Riley and Shannon.[1] The geographic distribution, in order of frequency, is: Brazil, the United States, India, Italy, Nicaragua, Argentina, Belgium, Cuba, East Africa, Grenada, Japan, Martinique and the Philippines.

REPORT OF CASE

N. W., a boy, aged 16 months, was brought to the hospital, Feb. 5, 1923, because of hunger, loss of weight, restlessness and irritability. Small, whitish flakes in the stools, suggesting tapeworm, were first noted about five days before. The temperature during the child's stay in the hospital varied from 98.6 to 100.4; the pulse, from 100 to 130. The urine was normal. Blood counts revealed: hemoglobin, 65 per cent.; red cells averaging 5,700,000; white cells, from 9,400 to 10,366. Some anisocytosis and poikilocytosis with some polychromatophilia were observed. The differential count revealed from 42 to 52 per cent. of mononuclear cells, with from 40 to 55 per cent. polymorphonuclears. The Wassermann reaction and throat cultures were negative. Segments brought to the laboratory were in such a condition of degeneration that no definite diagnosis could be made. However, on the administration of a vermifuge, the stools revealed numerous ova typical of the rat tapeworm, and in quite large numbers. Later the worm appeared, measuring 32 cm. in length and 0.5 cm. in diameter at the widest portion, with approximately 260 segments of very small size.

* From the College of Medical Evangelists.

1. Riley, W. A., and Shannon, W. R.: J. Parasitol. **8**: 109 (March) 1922.

SPONTANEOUS RUPTURE OF ABDOMINAL WOUND

MAX DANZIS, M.D., NEWARK, N. J.

A woman, aged 42, admitted to the Newark Beth Israel Hospital, Sept. 18, 1918, had been operated on in a New York hospital, two or three years before, for some pelvic condition. This operation left her with a large ventral hernia. Since this operation she had been acting in the capacity of a practical nurse. While thus engaged, one day she felt the scar on her abdomen give way. She was brought to a physician's office, where omentum and intestines were found protruding from the abdomen, and she was transferred to the hospital.

In attempting to free the adhesions, which were very extensive, from the skin, I noticed a small opening in the bowel. Continued separation resulted in further tears in the intestinal wall. It was noticed at this time that there was a tapeworm protruding from the proximal end of the torn intestine. About 15 feet of the worm was removed, but the head remained. About 3 feet of small bowel was resected, and end-to-end anastomosis was performed. A cigaret drain was inserted, and the abdomen closed by layer suture.

There was considerable postoperative shock. Drainage was very slight. The wound healed by second intention, and the patient was discharged, October 16. She subsequently developed a large ventral hernia, which was repaired by a second operation, March 3, 1921. At present, she has a firm abdominal wall and is in perfect health.

608 High Street.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

BUTESIN PICRATE.—Trinormalbutylparaminobenzoate-trinitrophenol. $(C_4H_9.NH_2.COO.C_6H_2)_3.C_6H_2(NO_2)_3OH$.—Compound consisting of one molecule of trinitrophenol (picric acid) and three molecules of the normal butyl ester of 4-amino benzoic acid.

Actions and Uses.—Butesin picrate combines the anesthetic action of butesin with the antiseptic properties of trinitrophenol (picric acid). An aqueous solution of 1:1,400 produces immediate and complete anesthesia of the eye which lasts from ten to twenty minutes. Butesin picrate is used in the treatment of burns, ulcers and other denuded painful lesions of the skin.

Dosage.—For use a 1 per cent. butesin picrate ointment is proposed.

Manufactured by the Abbott Laboratories, Chicago. U. S. patent 1,440,652 (issued Jan. 2, 1923; expires 1940). U. S. trademark applied for.

Butesin picrate ointment: Butesin picrate 1 part, incorporated in an ointment base composed of white wax, paraffin, liquid petrolatum, water and sodium borate 0.5 per cent., 99 parts.

Butesin picrate is a yellow, amorphous powder; odorless; taste slightly bitter. One part of butesin picrate is soluble in 1,400 parts of water; also soluble in 100 parts of cottonseed oil; soluble in alcohol, chloroform, ether and benzene. It melts at 109 to 110 C.

The aqueous solution of butesin picrate is greenish yellow; the color is intensified by the addition of alkali and is decreased by acid. A saturated, aqueous solution of butesin picrate is not affected by the addition of mercuric potassium iodid solution, by silver nitrate solution or by hydrogen sulphide solution. A few drops of sodium nitrite solution added to the acidulated solution of butesin picrate followed by a few drops of a slightly alkaline solution of betanaphthol produces a salmon-colored precipitate which quickly darkens. A purplish red color is produced if a one per cent. potassium cyanide solution be added to an aqueous solution of butesin picrate.

Incinerate 0.5 Gm. of butesin picrate, accurately weighed. The ash does not exceed 0.1 per cent.

NORMAL HORSE SERUM (See New and Nonofficial Remedies, 1923, p. 281).

United States Standard Products Company, Woodworth, Wis.

Normal Horse Serum.—Marketed in packages of one syringe containing 10 Cc.; also in packages of one syringe containing 20 Cc. The serum is preserved with 0.4 per cent. orthocresol.

Special Article

THE TOXIC EFFECTS FOLLOWING THE USE OF LOCAL ANESTHETICS.

AN ANALYSIS OF THE REPORTS OF FORTY-THREE DEATHS SUBMITTED TO THE COMMITTEE FOR THE STUDY OF TOXIC EFFECTS OF LOCAL ANESTHETICS OF THE AMERICAN MEDICAL ASSOCIATION, AND THE RECOMMENDATIONS OF THE COMMITTEE *

EMIL MAYER, M.D.
Chairman
NEW YORK

STATEMENT BY COMMITTEE ON THERAPEUTIC RESEARCH

The Board of Trustees of the American Medical Association provided funds and authorized the Therapeutic Research Committee of the Council on Pharmacy and Chemistry to appoint a special committee to collect and study information on the occurrence of accidents from the use of local anesthetics. The Committee for the Study of Toxic Effects of Local Anesthetics was organized under Dr. Emil Mayer, of New York, who had already made a successful study of the subject for the Section on Laryngology, Rhinology and Otology of the Association. Dr. Mayer was asked to associate with himself representatives of the various fields of medicine especially interested in the subject. Dr. R. A. Hatcher was asked to represent the Council on Pharmacy and Chemistry. The committee has completed its task and submits the report which follows.

The Therapeutic Research Committee has gone over the report with care and wishes to express its appreciation of the work. The leadership of the chairman, Dr. Mayer, merits special mention.

In the report of the committee, the following points require emphasis: 1. The committee has been able to collect and analyze reports of forty-three unpublished cases of death by local anesthetics. 2. Such accidents are more frequent than is commonly supposed. 3. The ordinary channels of medical publication do not obtain this information as successfully as a special professional committee. 4. Accidents occur with the more recently introduced synthetic anesthetics as well as with the older agents; and the symptomatology is very similar in all. 5. Dyspnea and the arrest of respiration within a few minutes after the administration are especially characteristic; so much so that it is questionable whether later deaths can be charged to anesthetics. 6. Unexplained differences of susceptibility probably exist, but the committee believes that the observance of the concentrations recommended will reduce the risks very materially, if not altogether. This does not question the right of the surgeon to depart from these concentrations. But he may see that, in exceeding them, he is treading on dangerous ground. 7. A proportion of cases is still referable to avoidable mistakes for which definite remedies are suggested. 8. In the treatment of accidents, the first place must be assigned to artificial respiration, perhaps with cardiac massage. The usefulness of adjuvant measures has not been established clinically. 9. The committee advises strongly against the routine use of morphin and epinephrin in the treatment of accidents. This is not to be interpreted as a criticism of the proper use of morphin *before* operations to quiet nervous patients, nor in the addition of epinephrin to the anesthetics *before* injection to diminish the absorption of the anesthetic agent. 10. The reporting of such accidents is a duty which the physician owes to others as well as to himself; to others because the study of such information is at present the only means by which accidents may be reduced; to himself, because the prompt report of the facts to a confi-

* This report has been made possible by a grant from the Board of Trustees of the American Medical Association at the request of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry.

dential professional committee is one of the best means of guarding against unjustified suits for malpractice.

To provide for a committee to which accidents from local anesthetics may be reported, the Therapeutic Research Committee has decided to ask Drs. Emil Mayer, Elliott Cutler and Robert A. Hatcher to constitute a small committee and to ask physicians and manufacturers to report promptly to this committee any toxic effects that may come within their observation. These reports will be received with the same assurance as to respect of confidence as was given by the present committee.

R. A. HATCHER, W. T. LONGCOPE,
REID HUNT, TORALD SOLLMANN, Chairman,
Therapeutic Research Committee, Council on Pharmacy and Chemistry.

On the initiative of Dr. Torald Sollmann, the Committee on Local Anesthetics of the Section on Laryngology, Otology and Rhinology of the American Medical Association undertook investigations by means of questionnaires that resulted in securing reports of forty-eight deaths following local anesthetics. With the hope that a more thorough study of the pathology and toxicology concerned might lead to the determination of the causes of these accidents and methods of avoiding them, the Board of Trustees of the American Medical Association authorized the appointment of a special committee to conduct this investigation. Dr. Sollmann, chairman of the Therapeutic Research Committee, appointed the following special committee: Emil Mayer, M.D., New York, chairman; Robert A. Hatcher, M.D., New York, secretary; David I. Macht, M.D., Baltimore; Alexander Randall, M.D., Philadelphia; Henry S. Dunning, M.D., New York; Charles Norris, M.D., New York, and Robert S. Lamb, M.D., Washington, D. C.

The plan and scope of the investigation agreed on embraced:

1. A study of records of all fatalities reported.
2. Tabulation of symptoms in fatal accidents.
3. Determination of the relative danger with various methods of application.
4. Determination of the relative sensitiveness with reference to different parts of the body.
5. Determination of the special value of the several local anesthetics in special fields of medicine.
6. Determination of the relative value of solutions of different concentration.
7. Determination whether epileptics are especially sensitive.
8. Formulation of rules to prevent avoidable accidents.

Local anesthetics are administered to millions of individuals every year; we also know that sudden death occurs among patients who have received no treatment, and it seems certain that the local anesthetics had little to do with the fatal outcome in several cases reported to the committee. Not only is it necessary to know that a local anesthetic was administered before death, but we must know that the symptoms were those commonly induced by it before we are justified in attributing death solely to the anesthetics used.

Two of the deaths occurred forty and forty-two hours, respectively, after the administration of the anesthetic, and the committee believes that these two deaths were not in any way due to the anesthetic used. One patient (405), who was unquestionably suffering from cocain poisoning, improved apparently, after which he received two doses of morphin sulphate[1] (having had one dose before the administration of the anesthetic). There were stertorous breathing, contracted pupils, and paralysis of respiration, followed by death several hours after the application of cocain. The committee is forced to the conclusion that the morphin contributed very materially to the death of this patient, and that without it he would in all probability have recovered. The anesthetic was probably only a contributory cause in some cases in which interstitial nephritis existed, and epinephrin was almost certainly a contributory cause of death in several cases.

In all those instances in which death was surely due to the local anesthetic, the toxic symptoms were practically the same. In these cases death occurred very quickly, usually before any operation could be performed. The effects in man are strikingly similar to those induced experimentally in animals, as were those reported by the committee of the Section on Laryngology, Otology and Rhinology. Convulsions and failure of respiration were usually observed within a few minutes after the administration of the local anesthetic.

TABLE 1.—*Local Anesthetics that Caused Death*

Alypin	1
Apothesin	4
Butyn	4
Butyn and cocain	1
Cocain (alone and with procain)	26*
Procain	2†
Stovain	1
Not classified	2
Due to causes other than local anesthetics	2
	43

* The local anesthetic is only contributory to the cause of death in at least one of these cases.
† The committee does not believe that the dose of procain (2.5 grains) recorded in Case 150 caused death.

The fact that alypin and stovain each caused only one of these deaths does not indicate that they are of low toxicity, and the relative infrequency with which they are used should be borne in mind. Two members of the committee report that apothesin caused most frequent complaint among those who reported to them, especially because of sloughing that followed its use.

The five deaths reported after the use of butyn, alone or in combination with cocain, indicate the necessity of caution in its use. Two of these deaths followed within a few minutes after the application of a 5 per cent. solution of butyn to the nose. Its use is still in the experimental stage.

Cocain, alone or in combination with epinephrin, caused the greater number of deaths in this series. It was used in solution in concentrations varying from 0.5 to 20 per cent., and in the form of a paste, and with epinephrin. It abolishes reflexes and induces satisfactory local anesthesia when applied to mucous membranes. The committee concluded that this can be accomplished without danger by the use of carefully measured amounts of solutions of low concentration, which should be applied only locally to the field of operation.

Procain[2] is used far more frequently than any other local anesthetic, but it caused only one (possibly two) of the fatalities. This statement must not under any circumstances be taken to justify the careless use of procain, for it is certainly capable of causing sudden death when used without proper care.

1. Cocain hydrochlorid and morphin sulphate are commonly called "cocain" and "morphin," and it is probable that the salts were used in every case in which it is stated that one of these alkaloids was used.

2. In many cases the proprietary brand of procain, "novocain," was used. There is no evidence to indicate that the effects of "novocain" differ from those of the several brands marketed as "procain" (The Quality of the Market Supply of Procaine, Report of the Council on Pharmacy and Chemistry, J. A. M. A. 72: 136 [Jan. 11] 1919).

It became evident to the members of the committee that procain did not contribute materially to the cause of death in several of the cases in which it was used with cocain. Patient 63 received a concentrated solution of cocain with epinephrin, and less than half a grain of procain; and Patient 67 received not more than one-sixth grain. It would be obviously misleading to report these two deaths as due to cocain and procain without explanation. It seems probable from what we know of the synergistic actions of cocain and epinephrin that procain contributed little to the cause of death in any of those cases in which it was used with cocain and epinephrin. The synergistic actions of cocain and epinephrin will be discussed later.

Of the forty deaths possibly due to local anesthetics mainly, twenty-four were of males and sixteen were of females; the youngest patient was 3 years old, and the eldest, 70. Twenty deaths occurred in hospitals; ten in physicians' offices; six in dispensaries, and in six cases the place is not reported. Fifteen patients were lying down, twenty-one were sitting, and in the remainder the position is not stated.

TABLE 2.—*Occasions for the Administration of the Local Anesthetics*

Thoracoplasty	1*
Scrotal hernia (intraspinal injection)	1
Extraction of tooth	1
Resection of rib	1
Resection of middle turbinate	1
Thyroidectomy	1
Operations for hemorrhoids	1
Operations on the antrum of Highmore	2*
Operations following burns	2
Laparotomies	2
Operations on nasal septum	3
Cystoscopies and urethral strictures	6
Tonsillectomies	20*
Prostatectomy	1
Total	43

* The committee concluded that the death following the thoracoplastic operation and that following one of the operations on the antrum of Highmore were not caused by the local anesthetic, and that one of those among the tonsillectomies was not caused by the use of procain.

NONFATAL ACCIDENTS

Many reports of toxic, but not fatal, accidents were received by the committee. A few of the more instructive reports are summarized here.

Alypin caused toxic symptoms in three cases in which it was used in the urethra in a concentration of 5 per cent. or less. Apothesin caused collapse in one case after the use of a 1 per cent. solution; gangrene in eight cases; and alarming symptoms in six in which it was used for sacral anesthesia.

Half an ounce of 4 per cent. solution of cocain was injected by mistake into the tonsils. The patient became blue and rigid in three minutes, but the pulse was fairly good. The stomach and colon were washed, and chloroform and "a full dose of morphin hypodermically" were administered, after which it is reported that the patient relaxed. Artificial respiration was maintained for half an hour. Recovery followed. This report is of interest chiefly because it illustrates the useless and even dangerous measures so often employed to counteract the poison.

Convulsions occurred in one case after the use of cocain in the eye. Various symptoms, such as fainting, collapse, photophobia, rapid heart, thready pulse and talkativeness, are also reported after the use of cocain.

Cocain was used in the urethra in concentrations up to 10 per cent., causing symptoms of poisoning in numerous cases. Syncope occurred in one case after the injection of a solution of less than 1 per cent. of cocain for the extraction of a tooth.

Procain was used in the urethra in nine cases in solutions of 4 per cent. or less with minor toxic effects.

Eighty cubic centimeters of 1 per cent. procain solution was injected rapidly for sacral anesthesia in one case. There were cyanosis, nausea, vomiting, and thready pulse lasting about ten minutes. Half an hour later, 20 c.c. was injected without inducing further toxic symptoms.

The committee received much valuable information in the comments of many who report no accidents in their practice. Some state most emphatically that they do not use cocain because of its toxic action, and many others imply as much. Among those who reported no accidents to Dr. Randall (urology), 121 expressed their choice of a local anesthetic. Of these, only eight use cocain exclusively for urethral anesthesia; twenty-seven others use it occasionally; while fifty-three state that they will not use it at all, eighteen of these having used it formerly. About seventy use procain exclusively or almost exclusively, while ninety-three use it mainly; seven use alypin and four apothesin mainly.

The reports to Dr. Cutler (surgery) are of the same tenor. He states that only five men among those reporting use cocain only, and they inject it in solutions of from 0.1 to 0.5 per cent. One hundred and ten are wholly opposed to the use of cocain, and most of them prefer cocain. Equally instructive are numerous discussions of those who report no accidents concerning the concentration and amounts of solutions of anesthetics used. The following, from one of the great hospitals, is typical of these:

> During 1920, while on the urological service at ——, I had considerable experience with local anesthesia. There we used procain in most instances, but often cocain as well, and although used in many, many cases, not once did we notice any toxic effects. Our good results there, so far as toxicity is concerned, were due in the main to the dilution in which the drugs were used, procain in the strength of 0.25 or 0.2 per cent., cocain 0.1 per cent. or a little stronger. The anesthesia produced by these weak solutions of the drugs is as effective as that of stronger solutions, the only question in my mind being whether or not it lasted as long in the case of the former. . . . Since starting in private practice, I have followed the technic mentioned above with very gratifying results. Some of the men expressed great surprise that such weak solutions as I use are so satisfactory; and I believe there are a great many in that group.

Procain in 2 per cent. solution was used in a college of dentistry in approximately 6,000 operations in which an average of 0.5 c.c. was injected without ill effects, except in two cases in which hematoma resulted.

REGIONS IN WHICH LOCAL ANESTHETICS WERE USED

Eye.—Only small amounts of the local anesthetics are used in the eye, and, except for the one case in which convulsions occurred, nothing more than an occasional minor accident was reported following the application of any local anesthetic to this organ.

Nose and Throat.—The local anesthetics were used in the nose or antrum of six patients whose deaths are reported, and in twenty for removal of the tonsils. The fatal tonsillectomies are tabulated here for convenience of discussion (Table 3).

The table shows that cocain was applied in at least twelve of these cases in concentrations greater than the committee now recommends as being safe; one death was due wholly or mainly to morphin, and one patient

received an injection of apothesin with epinephrin. Several of the records are so incomplete that no attempt is made to fix the immediate cause of death. Only one of these deaths is apparently due to procain; reference to the abstract of Case 150 shows that the patient did not manifest any symptoms that are typical of poisoning by local anesthetics, and the committee does not believe that 2½ grains of procain caused this death. The symptoms point to a local anesthetic as the cause of death in Cases 68 and 404, but the Committee believes that some error was made, for it is impossible to believe that the injection of $^{16}/_{100}$ grain of cocain with 0.2 mg. of epinephrin or the injection of a small amount of a solution of cocain, 1:1,000, is capable of causing death in the healthy adult.

What has been said is not to be taken as casting blame on any of the operators in these cases, but the committee believes that the burden of proof for justifying the use of cocain in such concentrations in the future will lie with those who employ them.

Mouth.—One death resulted after the administration of an anesthetic for the removal of a tooth, but there were no other fatalities reported following the use of local anesthetics in operations on the mouth and jaws, but there were many reports of abscess formation, hematoma, and long lasting pain following their use. These effects are almost certainly attributable to lack of care in the selection of the solution and the want of asepsis.

Urethra.—The danger of absorption of cocain and some of the other local anesthetics from the urethra has long been recognized, and this has led to caution in their use. In addition to the danger to life, the abolition of sensation, especially in case of stricture, is a distinct disadvantage in the urethral injection of the local anesthetics. An examination of the reports shows that cocain had been used in five of the six fatal cases, and in twenty-five of the thirty-eight in which alarming intoxication followed the urethral injection of local anesthetics.

Following the presentation of a report of fatalities resulting from local anesthetics to the American Urological Society in May, 1923, three deaths which followed the urethral injection of cocain were mentioned in the discussion. Two of these fatalities followed the use of a 2 per cent. solution and one that of a 5 per cent. solution. The general conclusion of those present was that no local anesthetic should be used in the treatment of urethral stricture, nor should a local anesthetic be injected into the urethra when there is reason to suspect abrasion of the urethral mucous membrane.

The three deaths just mentioned and one which followed the application of cocain to the tonsils, and of which the chairman learned casually, are not included in the case histories in this report. They afford further evidence that there have been many deaths from the use of local anesthetics which have not been reported in the medical journals or to this committee.

MANNER OF APPLICATION OF THE LOCAL ANESTHETICS

Solutions, especially that of cocain, are frequently applied with an applicator tipped with cotton, by spraying, and by hypodermic injection in operations on the nose and throat. The amounts used vary, but the applicator is commonly dipped into the bottle of the solution, and the application made at once, or the excess of solution is first squeezed out. The amounts used on applicators and in spraying are not usually measured. The amount injected is usually known, but it sometimes enters the circulation more rapidly than that used in either of the other ways just mentioned.

Many operators use stock solutions which are kept on hand for some time and which do not remain sterile; some of those used by dentists contain epinephrin, which decomposes on standing. Many use hypodermic needles without sterilizing them; often the area of injection is not disinfected; many dentists use local anesthetics without sufficient knowledge of their actions and the indications for their use.

In the urologic service of a large hospital, wound infection was common following the use of local anesthetics until the plan of sterilizing solutions by boiling before injection was adopted. Since the adoption of this plan, the incidence of wound infection following the use of local anesthetics is the same as that in which general anesthesia is used.

TABLE 3.—*Drugs and Concentration of Solutions Used in Twenty Fatalities in Which Tonsillectomy was Performed or Intended*

Case	Drug and Concentration
403	Cocain, 20 per cent., swabbed, 0.65 to 1.0 mg. epinephrin with procain injected
63	Cocain, 20 per cent., swabbed, 0.4 grain procain injected
201	Cocain, 20 per cent., applied, 2.5 grains procain 0.25 mg. epinephrin injected
62	Cocain, 10 per cent., applied, 0.5 (or 1.0) mg. epinephrin injected
409	Cocain, 10 per cent., swabbed, cocain, 0.1 per cent., with little epinephrin, injected
67	Cocain, 10 per cent., swabbed, procain (small amount) injected
70	Cocain, 10 per cent., swabbed, procain, 0.65 grain, epinephrin, 0.4 to 0.5 mg., injected
406	Cocain, 10 per cent., applied, procain, 0.25 grain, epinephrin, 0.6 mg., injected
407	Cocain, 10 per cent., applied, procain, 1 grain, epinephrin, 0.65 mg., injected
408	Cocain, 10 per cent., sprayed, procain, 1 grain, epinephrin, 0.25 mg., injected
410	Cocain, 10 per cent., applied, procain, 1 grain, epinephrin, small amount, injected
203	Cocain, 10 per cent., applied, procain, 2 grains, epinephrin, 0.2 mg., injected
405	Cocain, amount used and method of application unknown; 3 doses morphin, injected
204	Cocain, 4 per cent., applied, butyn, 0.65 grain, injected
61	Apothesin, 4.5 grains, with epinephrin, injected
207	Butyn, data insufficient
202	Cocain, 2 per cent., 2 c.c. (about), injected
68	Cocain, 0.16 grain, epinephrin, 0.2 mg., injected
404	Cocain, 0.10 per cent., injected
150	Procain, 2.5 grains, epinephrin, 0.065 mg., injected

Cocain is occasionally made into a paste with epinephrin solution, and this is rubbed into the mucosa for operations on the nose. The advocates of this method maintain that this paste induces such active vasoconstriction that absorption does not take place readily. The theory that the use of this paste is safe is disproved by the results in two cases, 412 and 502, that were reported to this committee. In Case 502, the cocain was a contributory cause of death; but, since death did not take place until forty hours after its use, the committee declined to include this death among those due mainly to poisoning by cocain.

The report of Case 412 serves to illustrate the danger. This so-called cocain "mud" was applied, and the antrum of Highmore was punctured without observable symptoms of cocain poisoning. Three days later, cocain was again applied in the same way, after which the other antrum was punctured and the patient died in five minutes. There was no idiosyncrasy, apparently, but at the time of the second operation the patient's physical condition was below par, her susceptibility may have been greater and she succumbed.

MISTAKES

The present investigation brought out the fact that a death previously reported as being due to procain was actually caused by cocain, and two of the deaths reported here were caused by cocain which had been substituted for procain by mistake. An analysis of the solution used in one of these cases showed that it contained 15 per cent. of cocain. At the request of the chairman, Dr. Puckner of the Chemical Laboratory of the American Medical Association agreed to examine any solution of an anesthetic, the identity of which was in doubt, which had caused a serious accident.

The dangers of substitution of cocain for procain (resulting from verbal orders pronounced indistinctly) cannot be emphasized too strongly. Especial precautions should be taken to avoid such mistakes, which have not only caused several deaths, but also numerous accidents of less serious nature.

PATHOLOGY

Dr. Norris submitted condensed protocols of eleven postmortem examinations (401-408, 410-412), which may be thus summarized: Only two of the patients were subjects of status lymphaticus, and this constitutional anomaly seems to have played no part in the cause of death. There was no history of epilepsy in any case.

The viscera were normal, but for the general visceral congestion common to all cases, except Case 406, in which there was a marked cardiovascular disease, and Case 412, in which there was an acute suppurative process and a fatty infiltration of the myocardium.

The chemical examination of the liver was negative in all the cases in which cocain was sought, and Dr. Norris says that the pathologic and chemical examinations in these cases afford no evidence against the conclusions that these deaths were due to the anesthetics.

Twenty necropsies were performed and thirteen full protocols were submitted for study. No distinct pathologic lesion was found that shows any cause for susceptibility on the part of the individual to these drugs, but the histories that accompanied the necropsy protocols show that the diagnosis of status lymphaticus is often loosely made and not always in accordance with the facts.

SYNERGISM: THE RÔLE OF EPINEPHRIN IN COCAIN POISONING

There is much uncertainty concerning the rôle of epinephrin in cases of death following its use with cocain, and a dose of 1 mg. of epinephrin alone may cause pronounced symptoms of intoxication in an adult during certain disturbances of the nervous system (hyperthyroidism?).

Ross [3] reported that epinephrin greatly increases the toxicity of cocain for cats by intravenous injection, basing his conclusion almost entirely on the amounts required to stop the respiration. Ross's conclusions throw little light on the therapeutic use of epinephrin with cocain, and the committee wishes to state that epinephrin in very small amounts does not increase the toxicity of procain when injected into the subcutaneous tissue or about a nerve.

Dr. Harry Gold of the department of pharmacology of Cornell University Medical College reported to the committee that the intravenous injection of a dose of 7.5 mg. of cocain hydrochlorid with 0.18 mg. of epinephrin per kilogram into the cat caused clonic convulsions and stoppage of the heart in eleven minutes. The dose of cocain in this experiment was just half the average fatal dose of cocain for cats as found by Eggleston and Hatcher.[4] Gold found in another experiment that, when the same amount of cocain was injected with one fifth of the dose of epinephrin mentioned in the previous experiment, the animal remained entirely normal except for dilatation of the pupils. A slightly larger dose of epinephrin (0.05 mg. per kilogram) greatly increased the toxicity of cocain, so that a dose of 9.5 mg. per kilogram proved very nearly fatal.

It will be observed that a dose of 0.18 mg. of epinephrin per kilogram, corresponding to a dose of 10 mg. for an adult, is less than that which has been recommended recently for resuscitation by direct intracardiac injection.[5] It is hardly necessary to state that such doses of epinephrin are never necessary, but, on the other hand, are extraordinarily dangerous. The smaller dose mentioned here (0.036 mg. per kilogram), corresponding to a dose of 2 mg. for an adult, is little larger than that probably used in combination with cocain in at least one of the fatalities recorded in our list, and it seems probable that epinephrin was a contributing factor in many of the deaths recorded. Whether epinephrin in doses of a milligram or less is capable of increasing the toxic action of cocain appreciably is not known, and this question is in urgent need of investigation.

A report made to this committee by Dr. Soma Weiss is of especial interest in this connection. He administered a dose of 0.015 mg. of epinephrin per kilogram of weight (a total of 1.16 mg.) to a woman suffering with hypothyroidism. He also administered the same dose (0.015 mg. per kilogram, a total of 1.03 mg.) to her three months later following a course of treatment with thyroid substance. The difference in reaction toward epinephrin before and after the administration of thyroid substance is striking. There was very little effect from the first dose, but the second caused a marked increase in pulse rate, with diastolic blood pressure falling to zero for some minutes, marked tremor of the body, irregular heart rate, extrasystoles, and perception of the pulse over the whole body. There were mild convulsive movements of the shoulder and right leg that could be controlled. The symptoms lasted about half an hour.

Kessel, Lieb and Hyman [6] say that epinephrin should not be given at the height of exophthalmic goiter, at which time its effects may prove alarming. They recommend that a preliminary injection of not more than from 0.2 to 0.3 c.c. (1:1,000) be made. They maintain that sensitiveness to epinephrin has nothing whatever to do with thyroid function, and that it may occur in the complete absence of the thyroid gland.

Animals bear larger doses of procain when small doses of epinephrin (corresponding to a fraction of a milligram for an adult) are injected simultaneously into the vein, than when the procain is administered alone in the same way. The explanation of the apparent discrepancy between the behavior of procain and certain other local anesthetics with epinephrin on the one hand, and that of cocain and epinephrin on the other, appears to be as follows: Procain is destroyed in the liver with great rapidity, and when the heart is made to beat for a short time follow-

3. Ross, E.: J. Lab. & Clin. Med. **8**: 657, 1923.

4. Eggleston, Cary; and Hatcher, R. A.: J. Pharmacol. & Exper. Therap. **13**: 433 (Aug.) 1919.

5. Champlin, P. B.: Resuscitation by Intracardiac Injection of Epinephrin Chlorid, J. A. M. A. **81**: 202 (July 21) 1923.

6. Kessel, Leo; Lieb, C. C., and Hyman, H. T.: Studies of Exophthalmic Goiter and the Involuntary Nervous System, Arch. Int. Med. **31**: 431 (March) 1922.

ing the administration of an average fatal dose of procain by means of a small dose of epinephrin given at the same time in 100,000 parts of physiologic sodium chlorid solution, a larger amount of procain is carried to the liver and destroyed than would be if the heart were not caused to continue beating by means of the epinephrin. The amount of procain remaining in the circulation is thereby reduced below the fatal dose, and the animal survives. Cocain is not destroyed nearly so rapidly, and the synergistic toxic actions of cocain and epinephrin develop, and the animal dies, if a large dose of each has been given.

When two local anesthetics are combined, the total toxicity is apparently that of the sum of the two. This applies also to the combination of local and general anesthetics, apparently. Dr. Macht of this committee reports that the lethal and toxic doses of alypin and cocain are very much smaller in animals during general anesthesia (ether, paraldehyd, etc.) than in nonanesthetized animals. He says: "One could not help drawing the deduction, from those experiments, that to give a general anesthetic on top of a local anesthetic would be a very dangerous procedure. This, of course, is pharmacologically plausible on account of the depressant effect on the medulla and heart or both." Dr. Macht's observation is in harmony with the observation of Eggleston and Hatcher that cats anesthetized with hydrated chloral succumb to doses of procain that are harmless to normal animals.

MORPHIN AND SCOPOLAMIN

The administration of morphin and scopolamin preliminary to the use of local anesthetics is advocated by many. This question requires careful consideration and further study. It is well known that many deaths have resulted from the use of morphin and scopolamin, and that these agents increase the danger from the use of chloroform and ether; and, since the latter are synergistic with the local anesthetics, it seems probable that morphin and scopolamin are also synergistic with the local anesthetics in their actions on the respiratory center.

The committee believes that morphin has a distinct field of usefulness in allaying the apprehension of nervous patients before operation, but it is necessary to sound a note of warning against the use of large doses of morphin or the use of repeated small doses.

ANTIDOTAL MEASURES

One of the most striking facts shown by a study of the reports is that the occurrence of an accident seldom finds the operator ready to apply suitable measures promptly; consequently, we find the greatest variety employed in such cases, and there can be little doubt that some of these are useless and harmful.

There is a widespread belief that ether is an antidote to poisoning by local anesthetics, but the committee knows of no evidence in support of this view, and, on the contrary, general anesthetics and local anesthetics are synergistic in their depressant actions, as already stated. There is apparently an analogous misapprehension regarding the use of morphin in such cases. Overdoses of any of the local anesthetics cause paralysis of respiration, and this is promptly followed by asphyxial convulsions, these being commonly the first symptoms observed. It is well known that morphin depresses the respiration, and that it is especially active in the presence of anesthetics; hence, morphin can be of no use in such cases, but, on the contrary, its administration greatly diminishes the chances of resuscitation through artificial respiration, cardiac massage and the use of digitalis, strophanthin or epinephrin, which may cause the heart to resume its beat. The study of the reports of other antidotal measures employed affords little evidence for or against their value, because, in most cases, the heart had stopped beating when they were used, or the circulation was so feeble that the drug injected did not reach the respiratory center or the heart itself. The chairman called attention to a paper by Mayer [7] and one by Hofvendahl [8] in which it was claimed that calcium chlorid is antidotal to cocain, and Dr. Weiss was requested to investigate the question.

Dr. Weiss conducted experiments on cats, guineapigs and frogs, and reported that calcium chlorid exerts no antagonistic action to cocain. He also stated that Karl Mayer's conclusions were faulty because of his failure to perform control experiments. Shortly after Dr. Weiss's report had been received by the chairman, Frank, Strauss and Smiley [9] reported similar results, but they failed to explain the discrepancy between their conclusions and those of Mayer and Hofvendahl, and Dr. Weiss [10] then published a paper describing his experiments and explaining why Mayer had fallen into error.

Cardiac massage and artificial respiration are probably the best means of treatment of cocain poisoning. Cardiac massage, artificial respiration and possibly the intracardiac injection of not more than 2 c.c. of epinephrin 1:10,000 offer the greatest hope in case of poisoning by procain; but it is rare that any operator will observe stoppage of the heart following the administration of a proper dose of procain. It is probable that the intracardiac injection of a suitable dose of a digitalis body is indicated, but the committee has no reliable information as to the proper dose of any digitalis body for administrations in this way, and the subject must await investigation.

It is to be observed that intracardiac injections cannot usually be made with an ordinary hypodermic needle after the heart has stopped beating. In such cases it recedes from the chest wall, and the needle should be inserted at least 3 inches in order to be certain of delivering the solution directly into the heart.

There is no desire to discourage attempts to resuscitate a patient whose heart or respiration has stopped, but it is necessary to remind the reader that we have no means at our command that offer much hope of success after the heart has stopped. While this may appear pessimistic, it should be remembered that, with suitable precautions, the operator will seldom have a serious case of poisoning. The interruption of respiration is not so nearly uniformly followed by death.

COMMENT

The committee does not condemn in any way the proper use of local anesthetics, but it wishes to point out that precautions are necessary in their use, and to show how they may be employed with a minimum of risk to the patient. There has been no other collective investigation of accidents resulting from their use, except that of the committee of the Section on Laryngology, Otology and Rhinology. Each operator has followed his own ideas concerning dosage. Many do not measure the quantities used; often the dosage

7. Mayer, Karl: Zur Bekaempfung der Cocainvergiftung, Ztschr. f. Ohrenh. **82**: 42, 1922.
8. Hofvendahl: Die Bekaempfung der Cocainvergiftung im Tierversuch, Biochem. Ztschr. **117**: 55, 1921.
9. Frank, Ira; Strauss, J. F., and Smiley, W. A.: A Study of the Action of Calcium in Experimental Cocain Poisoning, J. A. M. A. **80**: 1908 (June 30) 1923.
10. Weiss, Soma: A Study of the Action of Calcium in Experimental Cocain Poisoning, J. A. M. A. **81**: 1282 (Oct. 13) 1923.

recommended by the originators of a method has been increased; many have been misled into a false feeling of security by the absence of reported fatalities. Some have failed to appreciate the dangers of nervous dread of operation; one fatality occurred after an operation for a chronic condition in the evening after the patient had waited two hours. There has been no agreement concerning the proper antidotal measures.

Solutions of too great concentration are used frequently, and epinephrin is often used with cocain in large doses with dangerous or fatal results. The danger from the synergistic actions of two or more local anesthetics, as well as that attending the use of local and general anesthetics, must be borne in mind.

The evidence is convincing in the reports of a number of operators that satisfactory anesthesia can be induced for tonsillectomy by the application of a small amount of 5 per cent. cocain solution and the injection of from 1 to 3 c.c. of 0.5 per cent. procain with 0.1 mg. of epinephrin, and the committee believes that small amounts of such solutions will not cause death.

The evidence is equally convincing that satisfactory anesthesia can be induced in many other regions by means of the injection of procain in 0.5 per cent. solution with epinephrin, and that the proper use of such a solution is attended with practically no danger.

SUMMARY

The objects of the committee enumerated have been carried out as far as possible.

1. A study of reports of forty-three fatalities and numerous nonfatal accidents has been made. The case histories, in brief, of the forty-three fatalities are given below. Not more than forty of the deaths are attributable wholly or mainly to the local anesthetic used, and in at least one of these (Case 68) it was only the indirect cause of death. The fatalities are classified according to actual causes; the operations intended or performed; the age and sex of the patients, and the position of the patients. The synergistic actions of different local anesthetics, of local and general anesthetics, and of epinephrin and cocain have been discussed. Antidotal measures have been considered.

2. The symptoms in fatal cases have been tabulated, but the tabulation has been omitted from this report.

3. It has been impossible to determine with absolute certainty the relative danger of all modes of application of the various anesthetics. Concentrated solutions of cocain, and cocain with fairly large doses of epinephrin injected into the tissue, have caused the greater number of fatalities. The local application of a small amount of dilute solution of cocain alone (but of sufficient concentration to cause complete anesthesia) has caused no death, except some of those following urethral injection, of which the committee has been able to learn. Procain is certainly far safer than any of the other local anesthetics in common use, but that does not mean that procain should be used without caution, for it is capable of causing death when large doses are injected into the tissues. Butyn, alypin, apothesin, stovain and cocain are probably about equally dangerous when injected into the tissues, and when concentrated solutions are applied.

4. Urethral injections constitute a special source of danger. Absorption does not take place readily from the bladder or bronchial mucous membrane.

5. The committe has not been able to add materially to its knowledge of the comparative value of the several local anesthetics in special fields of medicine.

6. Emphasis is placed on the danger attending the use of cocain paste (so-called cocain "mud"), and suggestions are made concerning the concentrations of solutions to be used.

7. The reports of fatalities afford no evidence that epileptics are especially sensitive, and it may be added that while status lymphaticus is mentioned frequently in the necropsy records, the committee is of the opinion that status lymphaticus is not a frequent cause of death with the local anesthetics.

8. The committee believes that local anesthesia can be induced safely, if the following recommendations are complied with:

RECOMMENDATIONS

Cocain should not be injected into the submucous tissue or subcutaneously.

Cocain paste ("mud") should not be used as a preoperative measure. Its use in that way is unreservedly condemned.

Local anesthetics should not be injected into the urethra when trauma or stricture exists.

Especial care should be exercised in the use of local anesthetics when constitutional disease of a grave character exists.

The committee believes that local anesthetics may be applied safely in the following concentrations and total amounts: Cocain in the mouth and epipharynx (preoperative), 5 per cent.; in the nose, not over 10 per cent., and in total amounts of from 10 to 15 minims, containing from 1 to 1.5 grains; in the eye, not over 5 per cent.; in the larynx and bronchi, not over 20 per cent.—preferably 10 per cent. in two applications—and not over 15 minims total, containing from 1 to 1.5 grains. Procain should not be used in greater concentration than 1 per cent.; apothesin not greater than 2 per cent. and not more than 1.5 grains; butyn should not be injected, but may be applied in 2 per cent. solution. Epinephrin serves a valuable purpose in causing a bloodless field and in delaying the absorption of the local anesthetics, especially procain, but the addition of epinephrin in amounts of 1 mg. or more to a solution of cocain often results in a greater degree of toxicity than that from cocain alone when rapid absorption takes place; hence, the use of larger doses of epinephrin with cocain is deemed unsafe, and epinephrin should not be used in greater concentration than 1:10,000 and of this not more than 10 minims with cocain. Somewhat larger total amounts of epinephrin may be used with solutions of procain, but not more than 1 mg. of epinephrin should be used, and even this dose may be unsafe in patients suffering with hyperthyroidism. Further investigation of the actions of epinephrin are urgently needed.

When severe toxic symptoms result, efforts should be made to sustain the heart in order that the drug may be carried to the liver, where it is destroyed. Cardiac massage, and, perhaps, epinephrin in proper intracardiac doses, are indicated when the heart has stopped. The committee cannot endorse the views of those who recommend large intracardiac doses of epinephrin, and not more than 2 c.c. (30 minims) of a solution of 1:10,000 is recommended. The committee is unable to state the dosage of strophanthin and digitalis in such cases, but large doses are almost certainly dangerous. Artificial respiration is indicated, as a rule.

There is no evidence that the inhalation of ether or the injection of morphin has any value as an antidote to the local anesthetics, but, on the contrary, the use of

morphin in such cases is considered distinctly dangerous. Ether is possibly of value in controlling convulsions.

All doses of local anesthetics—however applied—should be measured accurately. This is manifestly impossible when preparations of unknown composition or concentration, including those that have deteriorated, are used, and the committee condemns their use as unscientific and dangerous.

Stock solutions of local anesthetics which have been used for numerous injections are seldom sterile, and their routine use is condemned. All solutions should be freshly made and should be sterile. They should be used at about the body temperature when injected.

Dentists (as well as other operators) should use accurately graduated syringes that do not leak, with needles that are properly beveled on the cutting edge. Injections should be made slowly, while avoiding lateral pressure, and sufficient time should be allowed to elapse for anesthesia to develop before an operation is started. The surface at the seat of operation should be dried, if necessary, and sterilized by painting with tincture of iodin or with another effective disinfectant.

All operators should keep solutions of different anesthetics in bottles of different colors under their personal supervision. Owing to the danger of misunderstanding when procain is pronounced indistinctly and of the substitution of cocain, great care should be taken when procain is ordered verbally. The use of sealed ampules of procain tends to prevent the substitution of cocain for procain. The danger of substitution will be lessened if all solutions of cocain are tinted as follows: "Add solution fluorescein, 1 mg. for each gram of cocain hydrochlorid used; i. e., sodium fluorescein, 1:10,000, for a 10 per cent. solution of cocain hydrochlorid; 1 part of fluorescein to 1 million for 0.1 per cent. cocain hydrochlorid; 0.1 mg. sodium fluorescein for 100 mg. cocain hydrochlorid in tablets. Solutions of procain and other local anesthetics should not be tinted." The name "procain" is unfortunately similar to "cocain," and in several instances the operator stated that he asked for procain, but received cocain from the nurse in charge. The committee recommends that the proper authorities consider the question of a name for procain that will be free from this disadvantage.

Operators are urged to publish reports of all cases in which a local anesthetic causes serious poisoning. When death occurs from the use of a local anesthetic, the container of the solution or tablets used should be sealed immediately and sent to a chemist for examination of the contents.

Superintendents of hospitals and clinics are also urged to see that accurate records of such toxic actions, whether fatal or not, are kept. Such records should be accessible to properly authorized investigators.

It is recommended that a permanent committee be appointed for the study of various problems concerned with the local anesthetics. That committee should investigate such problems as that concerning the actions of epinephrin and cocain; it should deal with various questions concerning the relative value of different anesthetics for special purposes; it should be competent to inquire into the circumstances attending fatal accidents of the nature presented here.

The committee wishes to express the deepest appreciation of the spirit which prompted those who have reported accidents. This course often requires great courage, and it is never a pleasant duty. Prof. Reid Hunt has aided the committee in many ways, especially in the determination of the scope of the investigation. The committee also wishes to express to Dr. Puckner of the Chemical Laboratory of the American Medical Association its appreciation of his cooperation.

The chairman has conferred freely with the representatives of manufacturers of various local anesthetics, who have cooperated with him cordially, even to the extent of reporting fatalities that had followed the use of preparations manufactured by their employers. An expression of appreciation is due them for their broad-minded attitude on this question.

Dr. Cary Eggleston has offered many helpful suggestions. Dr. Soma Weiss has been of the utmost assistance to the committee. He has not only investigated several problems, previously mentioned, in this report, but he has also offered many valuable suggestions during the discussions. Dr. Harry Gold also aided the committee by investigating the synergistic actions of cocain and epinephrin, and furnishing additional evidence of the urgent need of further study of this problem.

ABSTRACTS OF REPORTS OF DEATHS FOLLOWING THE ADMINISTRATION OF LOCAL ANESTHETICS

ALYPIN

CASE 301 (Dr. Randall).[11]—Male; aged 50; 1915.[12] Weak; anemic; chills and fever of long duration. Cystoscopic examination for infection. Alypin, 2-3 drams, 4 per cent. (5-7.5 grains) into urethra. Supine position. Bulbomembranous stricture. Convulsion within three or four minutes, cyanosis. Death, five to seven minutes after administration of alypin. Necropsy, multiple abscesses in liver and spleen.

APOTHESIN

CASE 61 (Dr. Cutler).—Male; 26; 1923. Tonsils showed evidence of previous inflammation. Operation proposed. Apothesin (4.5 grains) 0.5 ounce, 2 per cent. into tonsil. Epinephrin (amount not stated). Clonic convulsions five minutes later. Strychnin, nitroglycerin, digitalin, each 1/100 grain. Ether, three doses of 1 c.c., each at five minute intervals by hypodermic needle. Morphin, 1/4 grain, atropin, 1/150 grain; pulmotor. Death, twenty-five to thirty minutes after administration of apothesin.

CASE 64 (Dr. Cutler).—Female; 1921. Diagnosis, enlarged thyroid. Thyroidectomy; recumbent position. Apothesin (12 grains), 5.5 ounces, 0.5 per cent. solution injected. Faintness in ten minutes. Convulsions five minutes later. Death after thirty minutes.

CASE 71 (Dr. Cutler).—Female; 16; 1921. Enterostomy for ileus. Apothesin (6 grains) 1.25 ounces, 1 per cent. solution. Epinephrin (amount not stated). Drowsiness; eclamptic convulsions. Death in five to ten minutes. No necropsy.

CASE 73 (Dr. Cutler).—Female; 61; 1921. Supine; laparotomy; operation begun, but not completed. Apothesin (0.5 grain) 2 c.c., 1.5 per cent. solution in 0.5 per cent. chlorbutanol and epinephrin (amount not stated). Spinal injection. Dyspnea; pallor; severe shock. Treatment not stated. Death forty-five minutes after injection.

BUTYN

CASE 205 (Dr. Mayer).—Female; 35; 1923. Deviated septum; polyps and pus in left ethmoidal region. Sitting. Morphin, 1/8 grain, atropin, 1/200 grain, before applying butyn. Butyn (amount not stated) 5 per cent. solution swabbed over mucous membrane, nose packed with pledgets of cotton soaked in 5 per cent. solution; removed after ten minutes. Convulsions and cyanosis; pulse excellent between convulsions; paralysis of respiration. Death within fifteen or twenty minutes.

11. The names in brackets refer to the members of the committee who investigated the fatality.

12. This death occurred earlier than most of those recorded here, but it is included because of its unusual character, the completeness of the report, and because it has not been reported in the medical literature, so far as we know.

CASE 206 (Dr. Mayer).—Male; 16; 1923. Deviated septum. Sitting. Morphin, ⅛ grain, atropin, 1/200 grain, before application of butyn. Butyn (amount not stated) 5 per cent. solution swabbed; then nose packed with pledgets of cotton wetted with 5 per cent. solution of butyn. After ten minutes, convulsions; cyanosis; pulse continued good; paralysis of respiration. Death within fifteen or twenty minutes.

CASE 207 (Dr. Mayer).—Male; 27; 1923. Tonsillectomy. Butyn (amount not stated) 2 drams of 5 per cent. added to 3 ounces of water and amount used not stated. Apprehension; faint; convulsion. Death in a few minutes (time not stated).

CASE 208 (Dr. Mayer).—Male; 70; 1923. Prostatectomy intended. Butyn (about 0.4 gm.) 40 c.c. of less than 1 per cent.[13] into sacral canal. Convulsions; twitching of the eyes; collapse. Artificial respiration; epinephrin. Death in from five to seven minutes. Necropsy, none. Spinal fluid withdrawn and examined for butyn with negative results.

BUTYN AND COCAIN

CASE 204 (Dr. Mayer).—Female; 38; 1923. Tonsillectomy. Morphin, ⅛ grain, half an hour before operation. Cocain (amount not stated) 4 per cent. solution applied to anterior pillars and base of tongue. Butyn (⅔ grain) 4 drams, ¼ per cent. into tonsils. Nervous at once; gasped for breath; convulsions at once; pupils not dilated. Atropin, strychnin injected; ether inhalations; artificial respiration; camphorated oil. Death within few minutes. Necropsy, enlarged heart only.

COCAIN

CASE 412 (Dr. Norris).—Female; 52; 1923. For puncture, antrum of Highmore. Cocain-epinephrin paste applied to nose; trocar into right antrum. Three days later the following operation performed: Cocain (amount not stated) in 4 per cent. solution applied to nose. Cocain-epinephrin paste (amount not stated) applied. Sitting. Trocar into left antrum after twenty minutes; no pus. Stertorous breathing at once; froth at mouth; pulseless; heart stopped before respiration; no convulsions. Artificial respiration; whisky. Death without regaining consciousness. Necropsy, acute pulmonary congestion and edema; suppurative frontal sinus.

CASE 411 (Dr. Norris).—Female; 23; 1922. Resection and removal of middle turbinate. Morphin, ¼ grain, atropin, 1/50 grain, before operation. Cocain-epinephrin (amount not stated), cocain 4 per cent., epinephrin, 1:2,000, sprayed a few times, and applied on cotton. Operation after about fifteen minutes. Convulsion at once; aromatic spirit of ammonia; rallied, and operation completed. Morphin sulphate, ¼ grain; oxygen; strychnin hypodermically; artificial respiration; oxygen; digitalin. Death about two hours after cocain paste applied. Necropsy, status lymphaticus; shock.

CASE 152 (Dr. Macht).—Female; 39; 1921. Chronic myocarditis, pericarditis and endocarditis. Resection of ribs. Cocain (amount not stated) 15 per cent. solution (by mistake) injected with ⅔ mg. epinephrin. Convulsions immediately; unconsciousness. Respiration stopped; cyanosis extreme. Death immediately after injection. Necropsy, operative wound; cardiac hypertrophy; ascites; bilateral hydrothorax; edema of stomach; mitral insufficiency.

CASE 69 (Dr. Cutler).—Female; 36; 1918. Burns; skin graft. Cocain (by mistake, 1.5 grains) 20 c.c., 0.5 per cent. solution by infiltration. Convulsions, mild to severe. Death within five minutes in severe convulsion.

CASE 62 (Dr. Cutler).—Female; 17; 1919. Morphin, ⅛ grain, atropin, 1/150 grain, by nurse half hour before being seen by physician. Tonsillectomy for chronic tonsillitis; position not stated. Cocain (amount not stated) on swab, 10 per cent., epinephrin chlorid (0.5 mg.) 0.5 c.c., 1:1,000, into tonsillar pillars. Patient left room and after about ten minutes was found in dying condition by nurse. Pulmotor; nitrites and ammonia by inhalation: spirit of nitroglycerin and ether by subcutaneous injection. (No doses of antidotes stated.) Death in ten minutes after cocain.

CASE 68 (Dr. Cutler).—Female; 41; 1922. Tonsillectomy for frequent sore throat. Sitting up. Morphin sulphate, ¼ grain, atropin sulphate, 1/150 grain, half hour before operation. Cocain (⅛ grain) 3 drams 1:1,000; epinephrin 1 minim (1:1,000) to the dram, in four injections. Operation completed fifteen minutes after cocain. Walked to room with nurse and fainted at door of room. Respiration slow and difficult; cyanosis. Artificial respiration; strychnin, camphorated oil; dilation of sphincter; pulmotor; hot water. Death about forty-five minutes after cocain; seventy-five minutes after morphin. Heart beat fifteen minutes after starting pulmotor. No necropsy.

CASE 202 (Dr. Mayer).—Sex? age? 1921. Tonsillectomy. Cocain (amount not stated) 2 per cent. solution 2 c.c. or more injected. Respiratory failure. Artificial respiration for one hour. Death in one hour; heart ceased to beat.

CASE 404 (Dr. Norris).—Female; 24; 1920. Tonsillectomy. Sitting. Cocain (amount not stated) 0.1 per cent. solution injected. Operation completed. Convulsions within a few minutes. Death within about half hour. Necropsy, acute hemorrhagic pancreatitis; extreme congestion of organs; status lymphaticus; no cocain in liver of cadaver.

CASE 409 (Dr. Norris). Female; 37; 1922. Arthritis. Tonsillectomy intended, sitting. Cocain (amount not stated) 10 per cent., epinephrin 1:5,000 solution swabbed on throat. Cocain (1 grain) 1:500, epinephrin 0.3 mg. injected. Walked a few feet, complained of pain in head and palpitation; stood up, fell in epileptiform convulsion, pupils dilated. Pulmotor used. Death in about twenty minutes without having regained consciousness.

CASE 405 (Dr. Norris).—Male; 23; 1921. Tonsillectomy intended in sitting position. Morphin, ¼ grain, injected before cocain was used. Cocain (amount used and method of application not known). Collapsed after about ten minutes. Morphin sulphate, ¼ grain, repeated after half an hour. Recovered apparently and expressed desire to go home. Collapsed; became unconscious, stertorous respiration, small pupils. Artificial respiration, oxygen, digalen, hypodermically, and colonic irrigation. Death after about six and one half hours following coma, but no convulsions. Necropsy, congestion of all organs.

CASE 403 (Dr. Norris).—Female; 24; 1920. Tonsillectomy proposed, sitting. Cocain 20 per cent. solution used to swab throat, with epinephrin (⅔ to 1 mg.) 10-15 drops of solution. Procain (3.5 grains) 6 drams, 1 per cent. solution injected. Convulsions and cyanosis in fifteen seconds. Artificial respiration; dilation of sphincter; after which there were cyanosis, convulsions, semidilated pupils, faint radial pulse, scanty respiration. Cardiac massage; ether injected subcutaneously; epinephrin, 1:1,000, injected over the heart [sic]; suture in tongue; pulmotor. Death evidently within a few minutes. Necropsy, status lymphaticus. No procain or cocain found in liver.

CASE 63 (Dr. Cutler).—Female; 26; 1921. Tonsillectomy for chronic tonsillitis; chronic valvular disease; extremely nervous. Position not stated. Morphin suiphate, ¼ grain, atropin sulphate, 1/150 grain, about twenty minutes before coming to operating room. Cocain (amount not stated) 20 per cent. solution swabbed on fauces, and base of tongue; procain (0.025 gm., ⅖ grain)[14] 5 c.c., 0.5 per cent., into right tonsil. Immediate faintness, repeated convulsions; cyanosis; left pupil larger than right. Temperature rose to 106 in axilla. Amyl nitrite, camphor in oil, oxygen continuously, morphin sulphate, ⅛ grain, digalen, epinephrin, 1 c.c., hot coffee, enema, intravenous saline solution, external heat. Death four hours after cocain.

CASE 67 (Dr. Cutler).—Male; 31; 1921. Tonsillectomy for chronic tonsillitis; sitting. Cocain (amount not stated) 10 per cent. solution swabbed; procain (amount not stated) small amount of 0.5 per cent. solution. (Probably not more than ⅛ grain, 2 c.c.). (Epinephrin not mentioned.) Convulsions with respiratory and cardiac failure beginning before injection completed. Death within about four minutes. Necropsy revealed status lymphaticus.

CASE 70 (Dr. Cutler).—Male; 22; 1921. Tonsillectomy; sitting. Cocain (amount not stated) 10 per cent. solution, "to swab base of tongue and nasopharynx." Epinephrin (0.4-0.5 mg.) 6 to 8 drops with procain (0.04 gm., ⅔ grain) 8 c.c., 0.5 per cent. solution injected. Faintness almost imme-

13. Five tablets in 100 c.c. incompletely dissolved.

14. See discussion concerning negligible amounts of procain used in several of these cases.

diately; convulsive after three minutes. Convulsions lasting about three minutes. Pulse rapid, weak, respiration slow, regular and forced. Morphin sulphate, ¼ grain, hypodermically when patient first showed unusual symptoms. Ether by open mask when convulsions began. Two ampules of camphorated oil, 2 c.c. of ether by hypodermic injection. Cyanosis increased, heart began to flutter. Death after twenty minutes.

CASE 406 (Dr. Norris).—Male; 47; 1921. Aortic insufficiency; myocarditis; chronic rheumatism. Tonsillectomy started; sitting. Cocain, 10 per cent. solution to pillars; procain (¼ grain) 100 minims of 0.25 per cent. solution injected. Epinephrin (1/15 mg.) 5 minims to ounce of procain solution. Cyanosis during operation, followed by eight or ten convulsions. Ether, small dose of morphin, camphor, caffein. Death after about an hour. Necropsy, chronic interstitial myocarditis, marked coronary sclerosis, congestion of all organs.

CASE 302 (Dr. Randall).—Male; 28; 1920. Cystoscopic examination; horizontal position. Cocain (amount not stated) 2 per cent. solution into urethra. Convulsions within one minute. Death "within very short time." Accident attributed to rapid absorption due to abrasion of mucous membrane during cystoscopic examination made two days previously.

CASE 303 (Dr. Randall).—Male; adult; 1918. Stricture; urethral hemorrhage. Cocain (2.5 grains) 2 drams, 2 per cent. solution into urethra. Supine position. Coma at once. Death within few hours.

CASE 304 (Dr. Randall).—Male; adult; 23; "Some years ago." Stricture of urethra. Cocain. Nothing definite further. Immediate shock. Death immediately. Necropsy, persistent thymus.

CASE 305 (Dr. Randall).—Male; 62; 1920. Bronchiectasis, interstitial nephritis, pus in urine. On table for cystoscopy. Cocain (6 grains) 10 c.c., 4 per cent. solution into urethra. Violent cough and almost immediate unconsciousness; heart and respiration ceased. Pulmotor; epinephrin (amount not stated). Death immediately.

CASE 306 (Dr. Randall).—Male; 55; 1920. Hemorrhoids. In good health. Cocain (amount not stated) 0.5 per cent. solution injected. Death occurred promptly. No further data obtainable, but the evidence shows that cocain caused death.

CASE 402 (Dr. Norris).—Male; 35; 1920. Urethral stricture. Cocain (amount not stated) in 10 per cent. solution, injected into urethra. Death occurred on the table. Necropsy, liver was examined for cocain, but none was found.

COCAIN-PROCAIN

CASE 407 (Dr. Norris).—Male; 29; 1921. Tonsillectomy proposed in sitting position. Morphin, ¼ grain, and atropin, 1/150 grain, injected previous to operation. Cocain, 10 per cent. solution, applied three times to pharynx. Procain (1 grain) 3 drams of 0.5 per cent. solution and epinephrin, ⅔ mg., injected. Tremor, sighing respiration, epileptiform convulsions. Soon unconscious. Pulse bounding at outset; skin moist. Inhalation of ammonia, digitalin, camphor, atropin, strychnin, epinephrin, 1 c.c., artificial respiration; external heat. Death in twenty-five minutes. Necropsy, all organs congested.

CASE 408 (Dr. Norris).—Male; 22; 1921. Tonsillectomy proposed. Cocain, throat sprayed with 10 per cent. solution once or twice, procain (after interval) (1 grain) about 3 drams 0.5 per cent. injected with 5 minims epinephrin 1:1,000. Convulsions within three minutes. Oxygen; morphin, ¼ grain; artificial respiration, dilation of sphincter ani. Death evidently in few minutes. Necropsy, status lymphaticus recessive; general visceral congestion, persistent thymus. Had been rejected for life insurance because of high blood pressure.

CASE 410 (Dr. Norris).—Male; 34; 1921. Tonsillectomy (begun). Sitting. Morphin, ⅛ grain, hypodermically. Cocain, 10 per cent. solution, applied to pharynx; procain (1 grain) ½ ounce of 0.5 per cent. solution with little epinephrin. Fell forward when first tonsil removed; cyanosis. Slight vomiting. No convulsions. Oxygen; strychnin hypodermically. Death almost at once. Necropsy, status lymphaticus, extreme congestion of all organs.

CASE 201 (Dr. Mayer).—Male; 20; 1921? Tonsillectomy; sitting. Apparently in robust health, but history of epilepsy. Cocain (3 to 4 grains) 15 to 20 minims, 20 per cent. solution rubbed into soft palate, uvula, and dorsum of tongue. Procain (2.5 grains) in ½ ounce, 1 per cent. solution with epinephrin (0.25 mg.) 4 drops injected. Convulsion (closure of jaws) when operation half done, marked pallor, tremor of lower extremities; pulse rapid, weak; general clonic spasms; cyanosis. Artificial respiration. Death twenty-five minutes after application of cocain. Coroner's verdict, death from cerebral embolism.

CASE 203 (Dr. Mayer).—Female; 20; 1918. Apparently in good health. Tonsillectomy; sitting. Cocain (amount not stated) 10 per cent. solution applied. Procain (2 grains) 3 drams of 1 per cent. solution, 0.2 mg. epinephrin injected. Collapse almost immediately after operation, with paralysis of respiration. Restorative measures, pulmotor and other measures employed. Death six minutes after use of cocain. Necropsy, large persistent thymus.

PROCAIN

CASE 150 (Dr. Macht).—Male; adult; 1922. Tonsillectomy, proposed; chronic follicular tonsillitis. Semirecumbent position. Procain (2.5 grains) infiltration with 0.5 per cent. solution with epinephrin (1/15 mg.) 10 drops 1:10,000. One tonsil removed and, when the operator was about to remove the other, the patient asked for a basin to expectorate, smiled at nurse, attempted to expectorate, turned on side and died instantly of cardiac failure. Pulmotor; cardiac drugs. Death instantaneous. Necropsy, status lymphaticus; enlarged thymus. Physical examination, stereoscopic and roentgen ray had failed to reveal enlarged thymus.

CASE 151 (Dr. Macht).—Male; 3; 1921. Extensive burns; sloughing of skin; high temperature. Procain (amount not stated) 0.5 per cent. injected subcutaneously; only a narrow strip was anesthetized, when cyanosis followed at once; generalized convulsions at intervals of thirty seconds. (Epinephrin not mentioned.) Artificial respiration; oxygen after forty convulsions. Death in about twenty minutes.

STOVAIN

CASE 413 (Dr. Norris).—Male; 53; 1922. Scrotal hernia; syphilitic ulcer on leg. Stovain (amount not stated) intraspinal fourth to fifth lumbar space. Sac removed, wound closed. Respiratory failure. Death shortly after removal to operating room. Necropsy, paralysis of the phrenics [sic].

UNCLASSIFIED

CASE 501 (Dr. Dunning).—Male; 55; 1921. Proposed extraction of tooth; sitting. Drug not stated, amount not stated. Respiratory failure. Artificial respiration; brandy; digalen injected. Death at once.

CASE 401 (Dr. Norris).—Female; 25; 1919. Septum operation begun. Hysterical; breathing lessened and then stopped. Pulmotor, oxygen, strychnin injection. Necropsy, status lymphaticus. A local anesthetic is reported to have been used (probably cocain and procain), but the record is incomplete.

CASE 72 (Dr. Cutler).[15]—Male; 25; 1922. Advanced pulmonary tuberculosis. Extrapleural thoracoplasty, eleventh to fourth ribs resected. Horizontal. Procain (15 grains) 200 c.c., 0.5 per cent. with epinephrin. Profound cardiac weakness "in spite of stimulation of all kinds." Death after forty-two hours.

CASE 502 (Dr. Dunning).[15]—Male; 42; 1922. Antrum disease; copious pus in both nostrils. Cocain flakes moistened with epinephrin applied topically three times on cotton applicator under each inferior turbinate; and cocain flakes to the region of the maxillary ostium. Collapse with restoration under treatment, consciousness not regained, and heart and respiration soon ceased. Artificial respiration; and ammonia inhalation; heart beat and natural respiration; relaxed body soon became rigid, convulsions alternating with relaxation. Removed to hospital; warmth externally, high colonic irrigations, gastric lavage, digitalin. Next morning, profuse perspiration; pulse rapid, weak; still in coma. Albuminuria, casts. Death at 6:45 a. m. (forty hours after administration). Necropsy, status lymphaticus; chronic interstitial nephritis.

40 East Forty-First Street.

15. Cases 72 and 502 are reported here for the sake of completeness of the record, but the committee does not believe that the anesthetic caused death in these two cases.

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SATURDAY, MARCH 15, 1924

THE FAT-SOLUBLE VITAMINS

Ten years have elapsed since the now well known demonstration that the fats of milk contain a substance of unique potency in relation to physiologic well-being. The precise chemical nature of the effective factor still remains undetermined; but for convenience of reference it has come to be designated as vitamin A. The manifestations of its importance in the dietary were first recognized in the return to good nutritive condition exhibited through renewal of its supply to experimental animals that have declined on diets adequate in other respects. Such failures of growth or maintenance can be averted by the inclusion of some source of vitamin A in the food supply from the outset. Severe ophthalmias may also be produced experimentally through a regimen lacking in vitamin A and cured by a restoration of this factor to the diet.

In 1914, Osborne and Mendel demonstrated that cod liver oil, a product long prized in an empiric way for certain therapeutic virtues, contains the active "principle" just referred to. The use of cod liver oil as a remedy has a long history,[1] although the published record of its employment by physicians does not appear until toward the end of the eighteenth century. For a century or more it has found successful application in the treatment of rickets, a disease for the relief of which cod liver oil may well be regarded as a specific. The scientific studies of the last few years both on animals and on human infants have furnished well controlled tests that demonstrate beyond question the efficacy of the oil in the cure and prevention of rickets. In view of all these circumstances, the question has naturally arisen as to whether this potency is due to vitamin A.

The theory that a specific vitamin is concerned with the prevention of rickets was formulated by Funk nearly ten years ago. Edward Mellanby[2] tested the assumption experimentally and demonstrated the antirachitic action of some food substances known to contain vitamin A. For some time it seemed not unlikely that the various therapeutic potencies of cod liver oil, such as its antirachitic and antiophthalmic properties, are due to a single component. Presently, however, claims were advanced from various laboratories upholding the contention that the antirachitic power is not identical with the vitamin A, both being individual components of the liver oil. This has been well substantiated by a succession of evidences. For example, Goldblatt and Zilva[3] of the Lister Institute in London have shown recently that the growth-promoting and antirachitic properties of cod liver oil are inactivated at different rates by heat in the presence of air. In harmony with the presumable nonidentity of the two factors, McClendon and Shuck[4] of Minneapolis observed that spinach readily cures the ophthalmias due to lack of vitamin A, but has little, if any, remedial effect on rickets.

At the University of Wisconsin, Steenbock, Hart, Jones and Black[5] have studied the restoration of the normal composition of blood in rickety animals as a criterion for the demonstration of the existence of an antirachitic vitamin as distinguished from vitamin A. By the administration of cod liver oil freed from vitamin A by aeration, the inorganic phosphate and calcium of the blood were restored to normal, and the ash content of the bones was increased. These facts are taken as additional justification for the propriety of speaking of the fat-soluble vitamins rather than of a fat-soluble vitamin, as it lends support to the idea that the antirachitic vitamin is an entity distinct from vitamin A. If this is further substantiated, the evident multiplicity of independently effective vitamins will need to be reckoned with in many ways.

1. Guy, Ruth A.: The History of Cod Liver Oil as a Remedy, Am. J. Dis. Child. **26**: 112 (Aug.) 1923.
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THE RATHBONE BILL ON SERUMS AND VACCINES

Under general news in this week's issue of THE JOURNAL appears the text of the Rathbone bill, introduced as H. R. 7366, to amend the Serum Act of 1902. Among those who support the bill is Mr. Norman Hapgood, editor of *Hearst's International;* among those who oppose it are representatives of George H. Sherman, manufacturer of vaccines in Detroit. The news that G. H. Sherman had sued William Randolph Hearst, Hapgood and others for $1,600,000 for alleged libel in an article printed in Hearst's magazine has been broadcast through the United States by those interested. Physicians and the public, however, are not

concerned with the interests for and against the bill, but with the bill itself.

Even before the American Medical Association created the Council on Pharmacy and Chemistry, THE JOURNAL vigorously endorsed some of the principles represented by the proposed legislation. It has consistently urged rationality and honesty in both the manufacture and the advertising of biologic preparations. As far back as 1915, THE JOURNAL said: "Manufacturers should be required to state on the label whether the product is experimental, or of established value, and the federal law regulating the sale of serums, vaccines and similar products should be amended to give the Public Health Service authority to prevent interstate sale and shipment of worthless and possibly harmful biologic products, the burden of the proof to be on the purveyor." With this proposal there can be no quarrel, and it represents an opinion that the scientific physician would equally endorse today.

The new Rathbone bill, regardless of the influences that prompted or that oppose it, merits discussion, however, as to whether it will accomplish adequate control of the manufacture, advertising and sale of serums and vaccines. The Serum Act of 1902 requires manufacturers of biologic medicinal products to be licensed by the Secretary of the Treasury, and to affix to each package "the proper name of the article contained therein"; false labeling is prohibited; a board consisting of the Surgeon Generals of the Army, the Navy and the Public Health Serivce is authorized "to promulgate from time to time such rules as may be necessary in the judgment of said board to govern the issue, suspension and revocation of licenses"; and the Secretary of the Treasury is directed to enforce the provisions of the act and of the rules and regulations made by its authority, and to issue, suspend and revoke licenses as authorized thereby. The Food and Drugs Act of June 30, 1906, forbids the labeling of any package with "any statement, design or device regarding the curative or therapeutic effect of such article or any of the ingredients or substances contained therein, which is false and fraudulent." The pending bill proposes merely to amplify these requirements by providing that where no official standard or test has been established, the outside label or wrapper shall bear the legend, "No U. S. Standard of Potency"; that a manufacturer's license may be refused or revoked if the product is "advertised so as to mislead or deceive the purchaser"; and that the Secretary of the Treasury may refuse or revoke a license "when in his judgment the public interests would be served" by so doing. The value of the proposed inscription, "No U. S. Standard of Potency," would seem to be problematic in that it offers little in the way of protection to the purchaser, so long as the manufacturer is left at liberty to state on the label and in the package his own views regarding the matter. Moreover, it might be utilized as an excuse for deluging the market with a multiplicity of preparations of unknown merit. To enforce the prohibition on advertising "so as to mislead or deceive the purchaser" would be difficult if the court should hold it necessary to prove that a purchaser had actually been misled or deceived; and such a construction seems possible under the present phraseology of the bill. The most glaring defect of the present bill, however, is the clause that would vest in the lay head of the Treasury Department power to refuse or to revoke a license without reference to any regulations previously promulgated, and without giving due notice to all concerned of their rights and duties. If given at all, such power should be conferred only on a person or a board having technical knowledge of the subject.

There is no doubt that all reputable manufacturers of serums and vaccines, all physicians with an understanding of the scientific basis for such preparations, and all representatives of the government medical services will strongly endorse the aims and principles of honesty in therapeusis on which the Rathbone legislation presumably is based. Probably the present agitation of the question will result in good by causing public officials to give new attention to the problem, and to use to better advantage the powers already conferred on them by the Food and Drugs Act and by the Serum Act of 1902.

MEDICAL SUPERVISION IN THE INDUSTRIAL WORLD

This is a period in the world's progress in which higher ideals of health and vitality are being preached with much vigor to every group of our population. However much public and semipublic hygiene may be expected to accomplish in securing the desired conservation of vigor, it must be admitted that, without personal interest and cooperation, the current efforts of preventive medicine cannot become effective to any adequate degree. In the words of a well known report on the waste and conservation of national vitality, clean streets are of use only as they make the air breathed purer, but they are of little avail to the household that does not ventilate its rooms or keeps them in a state of filth. The milk supply of a city may be ideal, but all the pains to make it so will be set at naught if the individual consumer allows the milk to be contaminated after it is delivered. The labeling of foods and drugs will not prevent self-poisoning through alcohol, nor will the elimination of preservatives from foodstuffs and the enforcement of sanitation in their manufacture be of avail if, in their preparation for the table, they are subjected to disease and dirt. Thus, at every point of hygienic progress, there must be individual cooperation with public efforts.

What Fisher[1] wrote fifteen years ago about the slowness with which personal hygiene is exploited

1. Fisher, Irving: Bulletin of the Committee of One Hundred on National Health, Being a Report on National Vitality, Its Wastes and Conservation, No. 30, Washington, D. C., July, 1909.

applies to a considerable degree, today. Most persons, he remarked, leave their health to be attended to by physicians and health officers, just as many people leave their religion in the hands of a priest or a clergyman. So far as practiced at all, he added, personal hygiene has been confined chiefly to invalids and athletes. Even by them it is usually practiced to tide over an illness or to prepare for a contest. One often reads the statement that public health is something purchasable. Fortunately for mankind, this is doubtless true, in large measure. The question inevitably arises, however, whether we can afford to pay the price. So far as many larger efforts at health conservation through public channels are concerned, the cost of the gains achieved has surely been well justified. The reduction in the mortality and morbidity from typhoid fever, for example, represents one of the worth-while attainments of improved sanitation and public health service. The protection of our frontiers against the inroads of dangerous epidemics is another illustration of the advantage of public money well spent.

How about the more individual and personal features of health conservation? Let us admit that there is much economic waste in industry as the result of the absence from work caused largely by avoidable illness and physical disability. Do the remedial measures instituted by the industries pay for themselves? Mercenary as the question may appear to be, it is nevertheless one that must be answered in part without the bias of mere humanitarian or philanthropic sentiment. Physical examination and medical service are becoming part of the routine equipment of the personnel management of many industries. The experiments to determine both the effectiveness and the economic possibilities of such modern installation should not be allowed to fail because the test has not been properly conducted. Helpful information on the subject is gradually being collected. For example, in a recent report [2] from Cleveland, the physicians in charge of the physical examinations and follow-up work of a large department store frankly assert that the expense is entirely justified by results obtained in returns to the store.

This is not a mere offhand pronouncement, but is the outcome of an experience extending over several years. Even from the standpoint of mere dollars and cents, such medical supervision has been found to "pay." Out of nearly 1,400 persons examined, less than a third had no defects or only minor defects already corrected. Some of the details of the remainder are not without medical interest. About two persons in every three of the actual or prospective employees had defects of the teeth that were obvious to a medical examiner. Vision was defective in half the persons examined. Twelve per cent. of the total number, or 167 persons, showed goiter. Many were under weight. Foot defects were common, particularly in the women standing at work. Follow-up work is, of course, a sine qua non for the success of an experiment among such workers. "One encouraging factor in the health situation," the Cleveland hygienists wrote, "is that we found fewer defects in the younger than in the older generation." May one be emboldened to believe that, in truth, the education of the public in the prevention of disease and the improvement of physique is actually making progress where it will do the most good, namely, among the younger generation? Let us fervently hope so.

2. Swan, C. A., and Emmons, A. B., 2d: Physical Examinations with Follow-Up Work in a Department Store, J. Indust. Hyg. **5**: 359 (Feb.) 1924.

Current Comment

THE RECTAL ADMINISTRATION OF ARSPHENAMIN

While at first arsphenamin was administered intramuscularly, the intravenous route soon became recognized as the most usable method. However, in addition to the care required in the preparation of the arsphenamin solution for injection (which is now largely obviated by the use of neo-arsphenamin), the intravenous method requires some little skill, especially in children and the obese, in whom the veins are not readily accessible. Attempts have been made, therefore, to develop other methods of securing the effects of the drug, and of these, rectal administration has found most advocates. Naturally, manufacturers, ever seeking novelties, have used favorable reports and have supplied suppositories of arsphenamin. In 1920, the Council on Pharmacy and Chemistry published a report [1] noting that evidence was distinctly unfavorable to the rectal use of the drug. Subsequently, THE JOURNAL referred to another proprietary preparation of arsphenamin [2] for rectal administration. At present the medical profession is being circularized in the endeavor to popularize the rectal administration of still another form of arsphenamin (Arsphenoids, Swan-Myers Company, Indianapolis). According to the manufacturer of these arsphenamin suppositories, "they present a simple and efficacious means of administering arsphenamin, especially in those individuals showing obesity, neuroses, anemias or in whom intravenous medication is contraindicated or impracticable." The advertising matter asserts that "the clinical work carried on by some of the most eminent clinicians apparently shows that the intrarectal administration of arsphenamin is a successful method of treating syphilis." As might be expected, no hint of unfavorable studies is given. It is opportune, therefore, that Littman and Hutton [3] of the Department of Dermatology and Syphilology of Western Reserve University and the Cleveland City Hospital, at the request of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry, present a critical review of the literature and the results of clinical trials carefully

1. Supsalvs not admitted to N. N. R., J. A. M. A. **75**: 1219 (Oct. 30) 1920.
2. Bio-Chemic Laboratories Products, J. A. M. A. **78**: 603 (Feb. 25) 1922.
3. Littman, Sidney; and Hutton, J. G.: The Use of Arsphenamin and Its Derivatives Administered by Rectum, this issue, p. 868.

conducted. Most advocates of the rectal use of arsphenamin stress the importance of this method of administration in the treatment of infants. Consequently, the investigators selected a number of children with active symptoms of congenital syphilis. Arsphenamin, alkalized in the usual manner, was given by enteroclysis, and, in a number of cases, suppositories of arsphenamin were used. From their studies, the authors conclude that the clinical results obtained were too feeble, as compared with treatment by the intravenous or intramuscular methods, to warrant favorable consideration of this treatment in congenital syphilis. They hold that, in spite of the possibilities of reactions or difficulties in administration in infants, the intravenous administration of arsphenamin should be preferred to rectal administration as being more successful and more efficient. Moreover, according to the investigators, both neo-arsphenamin and sulpharsphenamin are now generally used by the intramuscular route in the treatment of syphilis in infants, with results that are above reproach.

THE SIGNIFICANCE OF MELANURIA

Almost all medical writers who have discussed the excretion of melanin in the urine have regarded its appearance as being restricted to persons in whom a melanotic tumor was present. Some clinicians have regarded melanuria as diagnostic of melanotic sarcoma.[1] Much interest has been aroused, therefore, by Peters'[2] recent demonstration at the Yale University School of Medicine that melanuria may actually occur in patients who give no evidence whatever of the presence of a pigmented tumor. In the first carefully studied case, none of the important viscera showed any abnormal pigmentation of the melanotic type, although the pigment was specifically identified in the urine. Closely following this discovery, Haden and Orr[3] of the University of Kansas School of Medicine have reported no less than twelve cases of melanuria, all of which occurred in the absence of melanotic tumor. According to these investigators, the manifestation described is characteristic of a specific type of protein destruction that may occur in widely different clinical conditions. Their patients showed certain fundamental chemical features in common. During the period of melanuria there was uniformly a low blood and urine chlorid content; the nitrogen elimination was always high, and usually there was an elevation of the content of nonprotein nitrogen of the blood well above normal. Melanin was demonstrated in large amounts in the urines of several persons with intestinal obstruction. Haden and Orr believe that, in these and similar instances, optimal conditions are provided for the metabolic disintegration of protein in such a manner as to provide a large amount of the precursors of the black pigment. If this should prove true, the great value of the demonstration of melanuria in the absence of melanotic tumor would lie in its indication of certain types of protein destruction. We venture to predict that, owing to the attention thus directed to the subject, melanuria will be discovered more frequently, and will consequently receive more exhaustive study than in the past.

1. The subject is reviewed by Feigl, J., and Querner, E.: Deutsch. Arch. f. klin. Med. **123**: 107, 1917. Spencer, W. G.: Brit. M. J. **2**: 907 (Nov. 17) 1923.
2. Peters, J. P.: Melanuria Without Melanosarcoma: Report of a Case, Arch. Int. Med. **32**: 709 (Nov.) 1923.
3. Haden, R. L., and Orr, T. G.: Melanuria in the Absence of Melanotic Tumor, Bull. Johns Hopkins Hosp. **35**: 58 (Feb.) 1924.

NO REDUCTION IN SPECIAL TAXES ON PHYSICIANS

The proposed revision of the Revenue Act of 1921 was passed by the House of Representatives, February 29. No reduction was made in the war tax imposed under the Harrison Narcotic Act, nor were physicians given the right to deduct in the computation of their income taxes traveling expenses incident to attendance at meetings of medical organizations or expenses of postgraduate study. Unless the Senate acts favorably, the profession will be compelled to continue to pay annually, in time of peace, approximately a quarter-million dollars war tax, over and above the amount that would be collected under the normal tax of one dollar a year. The profession will be compelled, too, to resort to possibly expensive and long-drawn-out litigation to defend its rights under the income tax law in the matter of traveling and postgraduate expenses, or to be continuously mulcted of the tax paid by the profession on such expenses. Having in mind, apparently, the strengthening of his position in refusing to recommend a reduction of the tax under the Harrison Narcotic Act, the Secretary of the Treasury has sought and obtained from the House of Representatives, and is seeking from the Senate, authority to absorb in the execution and enforcement of the Harrison Narcotic Act the war revenue now being collected under it. This means that he is endeavoring to procure an increase in the appropriation for its enforcement of from $750,000 a year to $1,250,000 a year, thus using up the ordinary excess revenue derived from the act. Obviously, there is no justification for assessing the cost of executing and enforcing this law against those who are taxed under it, as it is for the good of the public generally; but if the principle once is established, it will be difficult to modify or abolish. It is of the utmost importance that physicians who are interested in protecting the rights of the profession immediately write and telegraph to their senators, urging relief. Letters and telegrams should be sent particularly to the members of the Senate Finance Committee. Facts on which appeals for relief may be based were printed in THE JOURNAL, January 26, p. 326.

Status of Physicians in Ancient China.—What was the standard of qualification and status of medical men in ancient China? There can be little doubt that the healing art was learned by apprenticeship and by the acquisition of approved prescriptions, methods of obtaining proficiency generally recognized in China up to the present day. One is forced to the conclusion that the status of a doctor in ancient China was a poor one; in fact, no better than it has been in less remote times. Confucius himself is reported to have spoken of doctors in a disdainful way. And there is an illuminating passage in the Lichi (a similar book to the Chou li) which classes doctors with a number of others "who professed particular arts for the service of their superiors." The list is as follows: "Prayer-makers, writers, archers, carriage-drivers, doctors, diviners, and artisans."—Yetts, W. P.: *Proc. Roy. Soc. Med.* **17**:3 (Jan.) 1924.

Association News

ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE, PUBLIC HEALTH AND HOSPITALS

Held in Chicago, March 3, 4 and 5, 1924

DR. ARTHUR DEAN BEVAN, Chicago, in the Chair

MEDICAL EDUCATION

MARCH 3—MORNING

Present Needs of Medical Education

DR. N. P. COLWELL, Chicago: Published in full, this issue, p. 838.

The Business of a University Medical School

ERNEST D. BURTON, Chicago: Published in full, this issue, p. 844.

Medical Education, 1909-1924

ABRAHAM FLEXNER, New York: Published in full, this issue, p. 833.

The Clinical Teacher and the Medical Curriculum

DR. HARVEY CUSHING, Boston: Published in full, this issue, p. 841.

Suggestions on the Undergraduate Medical Curriculum

DR. GEORGE E. DE SCHWEINITZ, Philadelphia: The aim of undergraduate medical training should be to develop the student so that on graduation with the degree of M.D. he (*a*) should be reasonably trained as an embryo practitioner of medicine; (*b*) should understand the elements of the basic sciences on which medicine rests; (*c*) should know the sources of information, and (*d*) should have acquired studious habits so that he can continue his development in the field of medicine during the active period of his professional life. Careful selection by the leaders in medicine must be made for the undergraduate training of medical students, or the student is apt to have his entire mental energies engrossed in the accumulation of facts, with the result that his mind becomes an imperfect encyclopedia instead of a well trained working instrument for use in the practice of medicine. We must endeavor to give our students breathing spaces not only during each vacation time but also during each day of their training. Assimilation has become much more important than stuffing. It is also important in the selective processes to eliminate nonessentials and subjects of purely historical interest, and to leave to the student a considerable range of choice and interest and free time for library, clinical and laboratory study. Any attempt to prepare the young practitioner for every emergency that will arise will inevitably be doomed to failure. He can, though, have such training in the basic sciences, the methods of diagnosis and handling of patients from a therapeutic standpoint that he will be a *safe* practitioner from the very beginning.

The important points in the study of medicine are today—as they have always been—good knowledge of anatomy and physiology and pathologic anatomy, a thorough acquaintance with the simple methods of physical diagnosis, auscultation and percussion, the intelligent reading of roentgenograms, an appreciation of information to be derived from the organs of special sense, and a real familiarity with the main clinical methods of examination of the blood, urine and feces, transudates, exudates and spinal fluid, and then experience under suitable guidance in the application of these single methods and the observation of the effects of treatment. The most neglected part of medical instruction in many of our schools is the most important for the internist, the training of the student to stand on his own feet and use his own head and hands in the procedures of physical diagnosis. In public health and preventive medicine, the aim should be not to give technical training of the health officer sort but to develop a conception in the mind of the student of the significance of preventive medicine and the methods used by the medical profession and the community in controlling life so as to avoid disease or to limit established diseases.

Surgery, which comprises those affections or diseases which require mechanical procedures for their treatment, should in the main be regarded as a major specialty. "Only those parts of the so-called specialties that have practical bearing on the every-day practice of the family physician and are an integral part of the fundamentals of medicine and surgery should be taught during the undergraduate years. Students must be taught how to examine patients so that they may recognize any abnormal condition present, particularly in its early stages; but they need not be taught how to correct and cure those conditions which, because of their complexity or difficulty, fall within the realm of the specialist." The principle to be held clearly in mind by the entire surgical department is that the student must be taught to think clearly and to reason out the "wherefore" by reason of his previous training in the so-called fundamental branches. The surgical specialties must limit their work to a short demonstration of the conditions belonging in their special field and the results that can be obtained by the application of their special methods. 1. The physiologist, pharmacologist and internist should give regular joint clinics on patients with evidence of cardiac failure, acute pneumonia or gastro-intestinal conditions requiring both diet and drugs. 2. The ophthalmologist should himself examine before the students patients suspected of brain tumor, etc., in a certain percentage of patients, rather than be represented by a report on a piece of paper. 3. The patients with blood and renal conditions should be brought directly into the laboratory, and specimens examined and a diagnosis made so far as it is possible. 4. The personal presence of representatives of all the other specialties at clinics should be sought in order that the student may obtain a conception of what each specialty has to offer in diagnosis and management. The investigation of pathologic clinical questions should be stimulated. 5. It is particularly important that the pathologist should be brought into the operating room and that the significance of the frozen section should be brought home by practical experience to all members of at least the senior class. 6. Wherever possible, the patient should be used as the coordinating mechanism to bring together the laboratory workers and those interested in research, as well as the clinicians.

The present tendency to have all such contacts through written reports gives a fundamentally wrong conception to the student of his future duties as a practitioner. The bedside and the outpatient clinic should for certain hours in the day be the common meeting ground of all the workers of all the departments of the medical school. The constant division and subdivision of clinical work for convenience needs to be broken down, so far as teaching is concerned. The medical responsibility must remain in the hands of those to whom definite work is assigned, but consultations, instruction, research and various forms of the study of such patients should be stimulated in every way possible. In the instruction of the undergraduate students the laboratory work should be kept as practical as possible, always having in mind the training of a clinician and not a laboratory expert. The establishment of research departments separate from the clinical departments might tend to elevate clinical interest in medical cases. Full scope should be afforded the student, properly qualified, to select in his final year elective work of a research character. The number of students should be limited to those showing an aptitude for work of this type. Electives in ophthalmology, otolaryngology, urology, etc., deserve consideration at this period of the undergraduate course supplementing the earlier instruction. Beyond a definite required minimum of carefully selected material in the various fields which is thought at any given time to be requisite for the adequate training of the medical student for practice, there should be a wide range of choice on the part of the student as to his other work. There should be a definite time requirement both in calendar years and in hours which the student should meet. Rigid and definite scholastic demands in essentials is requisite for the protection and maintenance of the medical profession. The aim should be to secure men of sound and diversified training for admission to the medical school,

to cover in the medical school a carefully selected course of essentials, to maintain beyond that a wide range of interest and opportunity, and above all to fasten in the mind of the student the fact that he is entering on a profession demanding constant study throughout his life. He must realize, too, that he can require skill only by practice, that he can give safety to the patient only by the most careful preparation, and that diagnosis based on the fundamentals of medicine must ever remain the starting point for correct medical procedure.

EXTENSION MEDICAL AND DENTAL EDUCATION

MARCH 3—AFTERNOON

University Extension Postgraduate Medical Education

DR. GEORGE H. MEEKER, Philadelphia: One phase of the whole question of graduate medical education is university extension postgraduate medical instruction of merit to be furnished to general (and in certain cases special) medical practitioners without its being necessary for them to significantly interrupt their practices. In Pennsylvania, these efforts began in 1921 and have continued under the joint auspices of the medical society of the state and of the University of Pennsylvania through its graduate school of medicine. The plan adopted has been in operation somewhat less than two years, has met distinct success, and should be helpful to the general developments in the field. Eight systematic courses of instruction are provided: 1. Monday evenings are occupied by thirty-two lectures and demonstrations on clinical radiology — the teaching being done by the professors of radiology and their associates. 2. During the first half (sixteen) of the Tuesday evenings of the session, lectures on various topics in clinical biochemistry are delivered by a group of specialists in this field. 3. During the second half of the Tuesday evenings of the session, the professor of pathology presents the subjects of infection, immunity, biotherapy and chemotherapy. 4. A series of twenty-eight lectures on applied bacteriology and biotherapy is provided by the professor of pathology at 8 a. m., Wednesdays. 5. Clinicopathologic conferences constitute the work of the fifth course. In these conferences the clinical histories and postmortem and laboratory findings and specimens in selected cases of the Philadelphia General Hospital are brought together and critically compared by the clinical and pathologic staffs of the hospital. These conferences occur at 4 p. m. on the second and fourth Wednesdays of the session months, the material for the second Wednesdays being casual, and that for the fourth Wednesdays being so selected as to cover a definite range of topics. 6. The subject for the first fifth of the Thursday evening lectures of the session is the applied psychophysiology of the feelings, emotions and sensations. 7. During the next three fifths of the Thursday evenings of the session, the subject is syphilology, general and special. The general subject is presented in lectures by the professor of syphilology. The special portion of the course is presented in lectures by professors in various clinical departments. 8. The last fifth of the Thursday evenings is devoted to a series of lectures, by professors of clinical specialties, on the relationships of their specialties to general practice.

The whole Philadelphia nongroup extension program, therefore, comprises 140 teaching periods per session, divided into eight independent and systematic courses, which pertain likewise to the regular work of the graduate school of medicine. In addition to these courses, however, physicians are invited to attend the excellent general clinics of the undergraduate school of medicine. In Philadelphia there are also conducted such sections of the whole extension program as could only be normally conducted at the university itself, though the members of such extension groups of student physicians come from any or all parts of the state. Outside the Philadelphia district, the county medical societies function by stimulating their members to form extension groups. The secretary of the county society acts temporarily as a group registrar. He accepts as registrants only those physicians who are known to him as acceptable to the local county society. The dean will matriculate all group registrants as soon as certain requirements have been met by the group. A matriculation card is issued to each member of the group; he is duly entered on the records of the university, and becomes, officially, an extension student physician in the graduate school of medicine. The group members assume certain obligations. Each agrees: (*a*) to attend at least forty of the fifty teaching periods constituting one extension "course"; (*b*) to perform his assigned portion of the prescribed clinical work of the course; (*c*) to pay his per capita portion of the local expenses of the group. The group as a whole agrees: (*d*) to provide a suitable hospital as the teaching locus, to provide therein the clinical material and clinical and clerical services necessary to the teaching program, and to provide any other needed teaching space, materials, facilities or assistance not normally provided by the university; (*e*) to pay to each teacher, for such teaching session, an honorarium of at least $25 plus traveling expenses. The subject matter for a course is arranged by the dean after conference with the group representative. The method of teaching is systematic clinical conferences and lectures, using hospital cases which have been thoroughly worked up by small sections of the group (i. e., subgroups) especially assigned in rotation for this purpose. Subsequent to each teaching session, the group is responsible for follow-ups of the illustrative cases. An assistant representative sees that the cases are duly "worked up" and "followed up" by the subgroups, assists the teacher in his private studies of the cases, prepares the cases for the conference, and superintends and edits the work of the stenographer-clerk. The dean is kept currently supplied with duplicates of all of the data indicated above and with confidential criticisms by the representative on all phases of the group work as it progresses. Those group members who have fulfilled group membership requirements are eligible for examination on completion of a course; and, if successful, are awarded by the university a formal extension course certificate, of a nondisplay character, on which is set forth, briefly, the pertinent facts. The teachers for the extension courses are not only members of the faculty of the graduate school of medicine but also are such prominent physicians as accept service and assignment on the invitation and under the direction of the dean.

Experiences in Extension Medical Teaching in North Carolina

DR. I. H. MANNING, Chapel Hill, N. C.: During the summer of 1916, two teachers, Dr. Lewis Webb Hill of Boston and Dr. Jesse R. Gerstley of Chicago, were brought into the state to give instruction in pediatrics. Twelve classes were organized, six in the eastern and six in the western part of the state. Each class arranged to meet the teacher in some convenient town once a week for twelve weeks for a lecture of one hour and a clinic of two hours, and each physician registered for the course agreed to pay $30 to the university, the university assuming all financial responsibility. The teacher therefore made the circuit of six towns, varying between 25 and 50 miles apart, once each week. On his first visit he was accompanied by a representative of the university, who collected all fees and attended to all details of a nonprofessional nature. At the end of the course, a certificate of attendance, signed by the president of the university and the teacher, was given. There were 169 physicians registered in the two circuits. The average attendance was 76 per cent. From two points of view, public health and extension teaching, the initial experiment was encouraging, but it could not be followed up in succeeding years on account of the war. In 1923 there were three courses in medicine and one in pathology. We now have offered one or more courses in thirty-three different towns in almost all sections of the state. The total number of physicians enrolled during the three years (1916, 1922, 1923) is 748. The most difficult detail to carry through is the organization of the classes. The difficulty seems to be largely a matter of organization. The director of the extension division reports that financially the work is self-supporting. We feel that we have accomplished something worth while.

Extension Medical Teaching for Graduates

DR. ETHAN FLAGG BUTLER, Sayre, Pa.: In 1921, the University of Pennsylvania, through its graduate school of medicine, offered to the profession the opportunity of receiving postgraduate medical instruction at home. Four courses were

established during the university year of 1922-1923. One of the courses was started in Bradford County, decidedly a rural agricultural district with no community of more than 8,500. Twenty-seven physicians were enrolled. The course ran for the stipulated number of meetings and was adjudged a great success. In expressing their preference for the lectures, or clinics, it was easy to see that the older, more experienced teachers had made the greater impressions. The keynote of practicability was sounded in the very first meeting, a diagnostic clinic on thoracic diseases. Apart from eyes, ears and fingers, only six items were brought into play—stethoscope, pocket flashlight, tongue depressor, skin pencil, tape measure and clinical thermometer. The choice of subjects was determined with the best interests of the student group clearly in mind. There was selected as meeting place for the course a general hospital, situated in an accessible position, and modeled, as to professional staff organization, along lines similar to the Mayo Clinic. The hospital was of 235 beds, the service very active and diversified. There were ready for all teaching sessions selected cases, with mimeographed copies of the complete case records. It would seem advisable to place the local administration of the course in the hands of a director, who should also be the liaison officer between the group and the university. The director should be responsible for carrying out the general policies formulated by the central organization, and for the preparation of each meeting. Another contributory factor toward success was the low cost to each member. It amounted to about $60 for the whole course of twenty-five meetings—less than $2.50 a meeting. The frequency of the meetings, which were held at weekly intervals, proved satisfactory. They were close enough together so that the general thread of the subject matter was not broken, and sufficiently far apart so that no man could feel that his private practice was suffering because of his absence. The final contributory factor to success was the enthusiasm of the physicians themselves. The attendance was good, being 83.4 per cent. of the possible attendance. The following facts stand out: 1. It has been proved that university teaching can be carried to the general practitioner in country districts. 2. The physician can avail himself of the opportunity without serious interruption to his practice and without excessive cost. 3. Success depends primarily on an experienced corps of medical teachers, who must appreciate the limitations and practical needs of their students. 4. A central coordinating body—the university—is essential, and there must be close contact between this central point of control and the officers of the group. 5. The optimum place in which to conduct such a course is a well established hospital with ample facilities and with ample opportunity to secure an abundance of "clinical material." 6. The group must have a nucleus of workers, and these workers must be ready to carry the burden of the local preparation for the teaching periods.

Undergraduate Course in Preventive Medicine

DR. CARLISLE S. LENTZ, Augusta, Ga.: Our course begins in the freshman year and consists of lectures, at noon on Saturdays, by specialists on the personal aspect of the particular branch of hygiene in which they are most interested. The following Saturday, each student devotes ten minutes to writing a summary of the lecture given the preceding week. The remainder of the hour is devoted to the community aspect of the same subject. After twelve or more lectures, each student is required to fill out under direction the standard form recommended by the American Medical Association for the periodic examination of apparently healthy persons. As much time as is necessary is devoted to this as a convenient and effective way to crystallize the knowledge gained from the lectures. A complete physical examination by an examining board follows, and the first periodic examination is complete. A member of the staff acts as physician to the students and confers with them concerning the results of their examination. Public health bacteriology is taught in connection with the regular course in bacteriology, which is given by a man who has had eight years' experience in a well conducted public health laboratory and has secured his Ph.D. in public health. No extension of the course in bacteriology has been found necessary. Material for study is obtained from actual cases as far as possible. During the second year, the course differs from that of the first year in calling for considerable field work. The actual routine of a city health department in the protection of its water, milk and food supply is performed. Diagnostic laboratory practice is taught from material obtained by the student from school and clinics. Experiments are conducted by an agent of the U. S. Public Health Service (Division of Malaria Control), who is making a study of mosquito breeding and control. Parasitology is taught in the hard school of a hookworm survey and eradication campaign. Immunity and serum therapy occupy the last trimester, and practical experiences in the application of the principles taught is gained by animal experimentation and by immunization performed on volunteers from the class itself. Schick testing, toxin, antitoxin, immunization, vaccinations, etc., are practiced in preparation for actual experience in school and preschool hygiene. In the junior year, the clinical work is extended to include special activities of the health department, such as well baby and school clinics. Ample opportunity is afforded to become thoroughly familiar with special protective measures by actual participation in the activities of the department of school hygiene. Every activity of the department of public health is participated in by the students. In the fourth year, a thesis on some phase of public health is required, to be presented before the class, if satisfactory. Prenatal instruction is supplemented by visits with the staff of the board of health preparatory for obstetric service. Attendance at well baby clinics is compulsory, and preparatory for the special preventive pediatric clinic and the sick baby clinic. Problems in child welfare, epidemic control, etc., are worked out as opportunity offers. Mental hygiene is emphasized as a community problem, and practical experience in its solution is offered by clinics for delinquent children and visits to the state home for the mentally defective and the Lenwood Hospital. A summary of public health problems, with emphasis on a definite plan of city, county or state health activity for the future, occupies the last twelve hours of the spring term. The course comprises sixty-six hours. The total number of hours assigned to the department of preventive medicine is 298.

Medical Education and Culture

DR. STEPHEN RUSHMORE, Boston: Culture may be regarded as the process which produces in the student a condition of fertility of mind, of richness of imagination, so far as this is produced or affected by conditions external to the individual himself. What is the relation of culture to education? While the integrity of education consists in discipline, its very essence is culture. How can medicine be taught culturally? In the best sense, it cannot be taught in any other way. If the human mind is brought in contact with things intellectual, it is nourished by them, it grows and bears fruit. It is this basic fact that determines the method. As President Gilman said, "Every study is liberal if it is pursued in a liberal spirit." Professor Whitehead says, "Theoretical ideas should always find important applications within the pupil's curriculum." This is not an easy doctrine to apply but a very hard one. It contains within itself the problem of keeping knowledge alive, of preventing it from becoming inert, which is the central problem of all education.

Cooperation Between Dental and Medical Education

DR. HENRY L. BANZHAF, Milwaukee: Dentistry is part of the healing art. Dental education is really a highly specialized part of medical education. The problems are essentially the same as those of medical education, but it must be kept in mind that, in addition, the dentist must also possess a knowledge of the principles of engineering as they are applied to dentistry, together with the manual dexterity necessary to apply them in the mouth. The latter requirement, combined with extensive training in those branches of medical science that give the student the ability to diagnose pathologic conditions of the oral cavity, is the determining factor that will always distinguish the dentist from the medical man. In my opinion, dentistry must always be taught in a dental school; it can never be taught effectively in its entirety as a part of

the medical curriculum in a medical school. It is too highly specialized to make this possible, even if, in the light of other practical considerations, it were desirable. Since virtually all medical and dental schools in this country are now integral parts of universities, each should use the educational facilities offered by the university to the utmost, and neither should consider itself a separate entity in the life of the university. In this way duplication and waste may be avoided and the income derived from an educational endowment fund, or the public funds, may be utilized to better advantage than is possible when either the medical or the dental school in a university considers itself as distinct, separate and apart from the rest of the university. The importance of the public health service of the dentist in the minds of all the leaders in the medical profession has made possible a new educational cooperation between medical and dental colleges. An effective working agreement can be possible only when the dean of the medical school and the dean of the dental school are in sympathetic accord and understand each others' problems. The advantage to the educational institution of cooperation based on a mutual understanding and close organization between medical and dental schools is obvious. The beneficial effects to the cause of dentistry, and therefore to the cause of health service, will be far reaching.

DISCUSSION

DR. MARCUS L. WARD, Ann Arbor, Mich.: The place for some active cooperation to begin between the American Medical Association and the American Dental Association is, in my opinion, with a study of who is to assume the responsibility for many of the cases that now seem not to belong either to medicine or to dentistry, and from this point proceed to determine what is necessary adequately to prepare for this responsibility. Should dentistry assume the responsibility for only the diagnosis of certain systemic conditions that have oral manifestations, the problem before us is not merely one involving the teaching of the fundamental sciences but also one involving hospital training either in the medical hospitals or in the dental infirmaries or in both. Moreover, if society is to continue to receive the benefit of the present engineering and art that dentistry has developed, it appears perfectly obvious that neither the fundamental sciences nor the hospital training can have exactly the same attention that is given to it for medical students, unless there is either a revision of the medical curriculum to make it shorter, or an increase of the dental curriculum to make it a year longer than the medical one. These problems cannot be satisfactorily solved by arbitrarily requiring of dental students identical preliminary education and identical professional training with medical students, for that will require either more time in school for the dental students than for the medical students, or a sacrifice of some of the most highly developed dental service that the world has ever known. What is needed most is some educational research by dentistry with the cordial and sympathetic assistance of medicine, both in medical schools and in your great organization.

DR. C. SUMNER JONES, Buffalo: At Buffalo the students in dentistry are receiving their instruction for the first two years under the direction of the heads of the preclinical departments, and they are being taught the same as are the medical students. It has been suggested that dentistry should properly be considered as one of the specialties of medicine. If so, the point that I wish to make is simply this: If a man specializes as an otolaryngologist or a rhinolaryngologist or an otologist or in any of the specialties, he pursues the medical course, the clinical work, the intern year in the hospital, and then, as was discussed a year ago at this meeting, very definitely if he is to specialize he must devote from a year and a half to five or six years to his specialty. I believe that with the present plan the dental student will not receive the essential, typical instruction that he should have if he is going to be classed, or if dentistry is to be classed, as a specialty in medicine or with medicine. Then, if he undertakes to practice a branch of medicine without the clinical facilities that are offered medical students, the great, important feature of the preparation for a physician will have been lost.

DR. M. L. GRAVES, Galveston, Texas: The incorporation of dentistry into medicine in an elastic curriculum that would provide for their proper education not only in anatomy and physiology, but now necessarily in biochemistry and also in endocrinology, would result in great advancement not only of the dental profession and the medical professional but also of the people who are served by both.

MEDICAL EDUCATION AND LICENSURE

MARCH 4—MORNING

Restriction of Demands in Certain Subjects to Those Things That Are Significant

DR. DAVID L. EDSALL, Boston: There is a widespread conviction among competent medical educators that the admirable progress that has been made in medical education and in the standards of license for practice has developed some features that need correction. This happens with almost all good things. The rapid increasing of requirements, especially requirements of facts, readily tends to reach a point at which the simple acquisition of facts absorbs much more of the student's time and mental effort than does the intelligent contemplation of these facts, the comprehension of the principles underlying them, or the competent use of them. We have devoted our attention almost entirely to the increasing of requirements. I believe that we have thought too exclusively of adding requirements, and of eliminating unfit students, and we should now give consideration from time to time to the elimination of unfit or unnecessary knowledge from our requirements, and that for the particular benefit of the students who are fit. There are some signs already that the lack of such elimination has had undesirable effects, and that these effects tend to fall most heavily on the ablest and most independent-minded students. It is undeniably true that the medical curriculum has become extremely rigid in this country. A little comparison shows that there is less intellectual freedom in the medical course than in almost any other form of professional education in this country. There is actually much less intellectual freedom than in the senior and junior years; at least, in any good college —less, indeed, than in each of the four years in many colleges. The medical student has, therefore, peculiarly little opportunity for development of judgment as to the step that he will take next, peculiarly little responsibility in determining for himself what he will do and when he will do it. He knows that he can scarcely do much else than to keep to a lock step or he will be lost. Under such conditions, and with a severe task on them, all but a very few do what is mapped out for them in the way that it is mapped out. Some do it better, some worse, but most of them without greatly exercising their individuality. There are such great numbers of facts and conceptions with which the satisfactorily educated physician now must necessarily be familiar that medical education cannot be made other than a severe training, and in considerable part a definitely prescribed training. There cannot be much time for idling, and we must exact high standards of accomplishment. Unless we consider carefully from time to time whether we cannot profitably reduce the demand in some matters that have less significance, the continuous large volume of increase that goes on makes medicine more liable than other subjects of study to reach a point at which the producer of the schools is actually less good than if less information, but a fuller and freer comprehension were demanded. My own belief, after observing many recent graduates as interns and in practice, is that they rapidly make better physicians than the average graduate of a generation ago at the same stage, but that even the better group of them, with individual exceptions, go through a period of dependence on guidance, lack of initiative, and lack of confidence. There must then be some defect in the training, for the student body has better preliminary education, and certainly has equal intelligence—better intelligence, in fact, on the average, because the student body is now more carefully sifted. There are a number of things that go far, I believe, to explain this lack of adequate independence and judgment at the time of graduation. Much the most important, in my belief, is that the details required in the course have so multiplied that the student's time and thought are largely absorbed by his efforts to get what others

have determined for him that he must have. He has little or no time or strength to exercise his own independent judgment, or to develop his interests or initiative, and the course is not so planned that it can be expected of him that he should develop these. Independent judgment and enthusiastic interest grow with exercise, and atrophy with disuse, as do most other mental as well as physical powers. I think that the greatest fault in our medical training lies in not having given due consideration to that point. I feel with some confidence that many students, when they get through the medical schools, have less individuality, less enthusiasm, and less independence than when they entered from college. Some of this is a not undesirable loss of "freshness." Some of it, however, is a loss of a very precious kind of freshness that is most marked in the ablest and most original men. If the germs of independence and initiative can be thus killed or stunted in those who have them in strongest form, they must be even more readily and definitely suppressed in the more common run, in whom they are less marked, and in whom encouragement is needed to secure their growth. Much of the needed action can come from the medical school faculties alone. They can give the student more individual freedom in the direction and character of his effort, not only without reducing the standards of the schools, but with improvement in the character and quality of their graduates. They can give him some time free from scheduled directions, and not only allow him, but require him to employ it according to his best judgment. Much of this they can do without needing cooperation from the members of your body, and some of it is in progress in certain places. But to do this most effectually, and to accomplish certain other results that are highly desirable, they will need cooperation from you. The Council on Pharmacy and Chemistry met with cordial cooperation from many members of your body when they asked you to determine through the advice of a suitably representative group of clinicians which drugs were of such importance that applicants for licenses should know their uses, preparations and doses, and which might be neglected in preparing for licensure. To apply the same principle to other subjects is what I would propose, and in order to avoid too extensive an experiment, and to obviate confusion, I would suggest that it be done in only one subject at present, and that the one in which such action seems most desirable.

ANATOMY

In most places, more time is given in anatomy to things that are retained in the course simply through tradition than is true of any other subject at present in the course. Those departments of anatomy that bring out functional relations strongly are those that arouse the interest of their students most, and properly so. It is obvious, also, that the stress should be laid in any subject on those matters that illuminate and elevate the work that the student will perform in the world. Physiology, pathology and the practice of medicine are highly dependent on clear knowledge of the anatomy of the trunk and viscera. The significance to any of them of the anatomy of the extremities is relatively very slight. But the time and the effort put on the latter is usually decidedly greater than that given to the former. The dominating purpose of the general medical course should be to train men as well as may be done for the general practice of medicine. Authoritative textbooks in anatomy are not really textbooks for beginning students, or even those moderately advanced, but are really works of reference covering many of the needs of the specialist in practice and the advanced and special student of anatomy as well as those of the general physician. The student of general medicine cannot tell of himself what part of this vast whole he must have, what part he may leave aside. Only some agreement between his teachers and his examiners, put in such form that it can be made plain to him and can be depended on, can act as a guide to him. I would request, therefore, that your body take action toward the consideration of this matter, and would suggest that if it should meet with favor from you it would be desirable to have a representative group, chosen perhaps by the Council on Medical Education and Hospitals, and the Association of American Medical Colleges, determine the extent and character of the field of knowledge in anatomy, histology and embryology, and the amount of actual dissection that they feel would be not only sufficient, but most effective for the general medical graduate; this group, after due consideration, to confer with representatives of your body and with the National Board of Medical Examiners, if that body should see fit to enter into the matter, with a view to establishing restrictions beyond which the examining boards will not require knowledge. It would seem to me that the group might well comprise representatives of anatomy, physiology, pathology, clinical medicine, surgery, obstetrics and probably pediatrics, as these subjects are all of most importance to the general practitioners.

ABSTRACT OF DISCUSSION

DR. RAY LYMAN WILBUR, Stanford University, Calif.: If Dr. Edsall said anything that I did not agree with I did not hear him. I have a feeling that this is the way out of the mess that we are in. We simply must discard a good deal of the antique and unnecessary in our medical work if we are to take up the new and the necessary. We are at the dividing of the ways in medical education. I am convinced that few persons know much about education, and that those that have talked about it the most know the least. It is all unknown how to handle the human mind in the absorption of all these new facts and how to handle it so as to get the best results. Certainly, when we have an opportunity to reduce the amount of information that we require of our students and to increase their capacity to understand principles, we have some sort of a solution. What Dr. Edsall says about anatomy applies with equal force in the other fields of medicine.

DR. A. T. MCCORMACK, Louisville, Ky.: Initiative ought to be taught in medicine. The questions that ought to be asked on examination ought to be the last ten questions that occurred in that particular branch of the practice of a man who is practicing medicine in general practice, and not the specialist or the scientist, because people are most interested in getting well, and the man who knows how to do the things that will get them well is the man we need in the practice of medicine in this country.

DR. BEVERLY D. HARISON, Detroit: As a state examiner and a state executive of a board, I am aware that a great deal of unnecessary material is required from the standpoint of practical practitioners today that could be eliminated. I agree with Dr. Edsall in every detail.

DR. IRVIN METZGER, Pittsburgh: It is necessary for us to think in large terms as medical examiners and to attempt to determine what are the essentials in medicine as we examine the applicants. The accumulation of knowledge is so great in all lines that it is impossible for us to determine definitely unless we have very clear ideals. I appreciate this paper especially because it has aided us in securing these ideals. It is necessary for us to determine what mental power in medicine the applicant has; the degree of safety with which the applicant may appear in a community and take charge of the health of the community. Our examinations, therefore, as far as securing information, as far as training has been concerned and the amount of knowledge the applicant has obtained, should be limited largely to the danger zone.

DR. E. STANLEY RYERSON, Toronto: Dr. Edsall has struck one of the keynotes in connection with the future development of medical education. We could make a survey of the general profession and find out what facts, for example, in connection with anatomy they are using from day to day, what particular points are absolutely essential to their practice, and as the result of a survey of that kind we could arrive at the time when the essentials could be given to every student that goes out. We would have some guide as to what things should have a large amount of teaching and what should have a small amount of teaching. At present I know from my own experience and from observing it from day to day that many students will go out with a very thorough and detailed knowledge in connection with such a thing as thyroid or as gastro-intestinal conditions, and when he comes into practice

many of them he may not meet for several years, and therefore not be in position to handle them.

DR. ALEXANDER PRIMROSE, Toronto: There is a danger that the result of such an investigation as is suggested in attempting to establish essentials, particularly in the preliminary science departments, would result in publication of a list or a schedule of essential facts to be taught, and that the students should be trained along those lines. That is all wrong. I have been a teacher of anatomy. It occurred to me earlier in my career, when this subject was first mooted, that there is a real danger if the student should be taught to scamp things; in fact, as has been suggested, that he should pick out essentials. That is erroneous. No matter what he does, the student should do that thoroughly. A student should have a sufficient knowledge of physics; he should be able to apply the principle of physics in his practice, and the same thing applies to chemistry. He should be taught to think physiologically.

DR. WILLIAM KEILLER, Galveston, Texas: This business of eliminating the unimportant from anatomy is an exact indication of the little anatomy that one knows. Some of us can educate a little, but no man can give a man common sense if he does not have it. Our anatomic course is a magnificent training in observation, in handling instruments, in educating the fingers, if it is done the right way. I have one ambition, and that is to get my men so thoroughly familiar with the human body that if they have sense enough by and by to review their anatomy before an operation they will review it in such a way as to say, "Yes, I know that, I have seen that." That is the kind of anatomy I want to teach.

DR. T. J. CROWE, Dalias, Texas: What does it profit a man to know anatomy thoroughly and appear before a state board that knows very little anatomy and fail on a very technical and useless question? We ought to commence by educating the state boards, because nowadays the medical student knows a lot more medicine than the members of the state boards.

DR. ALEXANDER C. ABBOTT, Philadelphia: I have felt from my own observation that the state boards had their ear to the ground in precisely the same manner that the educational institutions have had their ears to the ground, and that there has been a disposition for the two bodies to get together and cooperate in such a manner as to have a sensible result. There is no disagreement of opinion among medical educators that the time has come when medicine can be competently taught and in a more simple way than has been followed in the past. I am equally convinced that boards of licensure are prepared to meet these new rules. I feel, therefore, that the suggestion contained in Dr. Edsall's paper is infinitely the best way to get at the result we are all after.

DR. J. S. RODMAN, Philadelphia: It is the patient's good we are looking for, and the college association, the state examining boards and the national board are all looking toward the same end. Practical examinations are the valuable part of the examination of the candidate's fitness to practice medicine. We have felt within the last few years the need for a greater bringing together of the clinical subjects and the so-called fundamental branches. It has been difficult to get examiners who could apply anatomy and chemistry and physiology as probably it should be applied. This is a problem of medical education, and the medical schools are fully alive to this situation.

(To be continued)

Shaping Proposed Health Legislation.—The shaping of health legislation may be viewed for present purposes as being wholly a legal problem, while the promotion of health legislation may be viewed as an educational one. Both phases of the work are usually carried on concurrently with the emphasis at first on shaping the legislation and, later, on its promotion. Success in the promotion of such legislation depends upon a clear perception of the situation to be dealt with, a logical marshaling of the facts in the situation, a reasonable assurance that the proposed legislation will accomplish the desired end, and finally, the choice of methods in convincing the public that the proposed legislation is necessary.—R. G. Paterson: *Hosp. Soc. Serv.* **9**:19 (Jan.) 1924.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Funds for Health Work.—Last year the Alabama state health department received $6,875 from the U. S. Public Health Service for rural sanitation. The budget bureau this year recommended $74,300 as the appropriation, but the appropriation committee of the house cut the item to $50,000. Representatives Hill and Stegall called attention to the importance of this work, and succeeded in having the $74,300 recommended by the budget bureau restored.——The board of commissioners of Marshall County have appropriated $5,000 to establish a county health unit and have elected Dr. Robert Williams, Limestone County, as all-time county health officer. This makes a total of twenty-three of the counties of the state having active public health organizations. Three more units will be organized this year.

CALIFORNIA

Licenses Revoked.—According to the board of medical examiners of the state of California the licenses of Dr. Heinz G. A. Hummel and George E. Thwaites have been revoked, the former because of an illegal operation, the latter on conviction in Illinois of violation of the Harrison Narcotic Law.

Shoe "Doctor" Jailed.—E. E. Hosmer, San Francisco, who treats disease through the "restoration of cosmic forces," was arrested, March 1, for practicing medicine without a license following an investigation by the state medical board, according to reports. He advised a patient to wear shoes manufactured by him to cure her "nervousness." According to our records he was arrested in Lynn, Mass., Aug. 5, 1907, on the same charge (THE JOURNAL, Dec. 21, 1907).

Diploma Mills Send "Diplomas" to Japan.—According to reports, it was revealed at the trial of Dr. Date R. Alexander, Kansas City, that the "diploma mills" have sent many "diplomas" to Japan to persons, supposed to have completed a correspondence course in medicine and other subjects. As a result of this disclosure California authorities have started an investigation of all diplomas held by Japanese practicing medicine in that state. Diplomas were also received in Japan from the Oriental University, Washington, D. C., it is alleged.

COLORADO

Hospital News.—The dedication and opening of the Agnes Reid Tammen wing of the Children's Hospital took place, February 16.——The offices and laboratories of the Denver City Health Department have been moved from the City Hall to the General Hospital in behalf of economy and efficiency. ——Dr. Louis W. Soland, Alamosa, has purchased property at State Avenue and Second Street, which will be used as a hospital when remodeled.

DISTRICT OF COLUMBIA

Senate Hearing on "Diploma Mills."—At a hearing of the Senate Committee investigating "Diploma Mills," March 6, it was stated by Augustus S. Downing, assistant commissioner of education of New York State, that there are four institutions in the District of Columbia which are selling degrees under the guise of correspondence courses. The institutions, he said, are the Oriental University, the Potomac University, the Washington Christian College, and Lee University. Senator Copeland of New York requested him to prepare a bill for the District which would be a model for the states. It was stated that such a bill would place educational institutions in the District under the U. S. Bureau of Education. The committee decided to confer with postal officials to determine steps to be taken to curb the use of the mails by correspondence schools that sell degrees.

FLORIDA

Health Officer Appointed.—Dr. Harry E. Hitchcock has been appointed district health officer for the west coast of Florida, succeeding Dr. Alva C. Hamblin, Pensacola. Dr. Hitchcock received his M.D. degree from Bowdoin Medical School and his public health certificate from the Harvard School of Public Health.

ILLINOIS

Illegal Practitioner Indicted.—"Dr." Margaret Kadana, Cicero, is reported to have been named in a true bill voted by the grand jury, March 7, in which she was charged with practicing medicine without a license. Kadana, it is alleged, advertised as a chiropractor and treated employees of several large manufacturing plants in Cicero.

Public Health News.—Dr. Ralph W. Nauss, assistant epidemiologist of the division of communicable diseases, state department of health, has conducted a series of demonstrations in the technic of immunization before county medical societies at various parts of the state during the winter. Attention has been given to smallpox vaccination, the Schick test and immunization against diphtheria. Demonstrations have been given, to date, at Carthage, Galesburg, Edwardsville, Carbondale, Centralia, Mount Vernon and East St. Louis and half a dozen others are scheduled for the future. The meetings have been well attended.——Arrangements for the organization of a full-time county health unit in Sangamon County have been completed and Dr. Raymond V. Brokaw, who has been in charge of the Morgan County health department, has been employed as director. The funds will be provided by the city of Springfield and by the local health agencies, consisting largely of Red Cross chapters, in outlying districts. The plan provides for the coordination of all public health services now operating in the county and will extend over a period of two years. This brings the number of full-time county medical health officers in Illinois up to three, Morgan and Cook counties having the other two.——At a recent meeting of the Cook County Board of Supervisors arrangements were completed for the employment of a full-time county health officer, under whose direction it is planned to coordinate all public health service now being done in the county.——Two better baby conferences have been held by staff members of the state department of health in 1924 and fourteen others have been scheduled for the spring and summer. Applications for assistance at conferences at county fairs have been received from a number of places. Due to the limited staff available, those who desire the assistance of the department for programs of this character are requested to make application at an early date.——Statistics relative to the construction, condition and results of water purification plants in Illinois have been compiled and printed by the engineering division of the state department of health and are available for persons interested. The data shown is based on inspections made during the last ten years.

Chicago

Roseland Hospital Opened.—The Roseland Community Hospital on Perry Avenue, Chicago, was formally opened to the public, March 8. The institution has a capacity of 101 beds. When the nurses' home is completed, the hospital will represent an investment of $350,000.

Personal.—Dr. William A. Pusey, President-Elect of the American Medical Association, will deliver an address before the annual meeting of the Oklahoma State Medical Association in May.——Dr. Henry Bascom Thomas, St. Luke's Hospital, Chicago, was the guest of honor of the Whitley County Medical Society in Columbia City, Ind., February 12.——Dr. Daniel N. Eisendrath read a paper on "The Newer Developments in Urinary Surgery" before the Elgin Physicians' Club, Elgin, Ill., March 10.——Harry Eugene Kelly has been appointed special assistant attorney general in charge of litigation which concerns the medical laws of the state. Mr. Kelly has served the Chicago and Illinois medical societies as legal adviser for many years.——Dr. Herman L. Smith, Chicago, superintendent of the Michael Reese Hospital, gave an address on "Hospital Management and Costs," before the trustees of Lake-View Hospital, Danville, Ill., recently.

Society News.—Societies meeting in Chicago during the Annual Sessions of the American Medical Association, June 9-13, are: the American Radium Society, the American Society of Tropical Medicine, the Radiological Society of North America and the Associated Anesthetists of the United States and Canada.——At a meeting of the Chicago Pathological Society, March 10, a scientific program was given with Drs. Leon Bloch, James P. Simonds, J. Lisle Williams and Clarence A. Barnes as the speakers.——The Chicago Council of Medical Women will meet, March 25, when a paper on "The Chemistry of Blood as a Clinical Thermometer," will be presented by Dr. Georgine Luden of the Mayo Clinic, Rochester, Minn.——At a joint meeting of the Chicago Medical Society and the Chicago Society of Anesthetists, March 12, Dr. Arthur E. Guedel, Indianapolis, spoke on "Abdominal Rigidity Under General Anesthesia," and Dr. Elmer I. McKesson, Toledo, Ohio, on "Some Results of Operations on the Circulation: Their Significance and Treatment."——A joint meeting of the Chicago Neurological Society and the Illinois Society for Mental Hygiene will be held, March 28. An illustrated lecture will be given by Dr. Charles R. Stockard, professor of anatomy, Cornell University Medical College, New York City.

INDIANA

Personal.—Dr. Augustus Case, Akron, celebrated his ninety-first birthday, November 8. Dr. Case graduated from the Medical College of Ohio, Cincinnati, in 1857.——Dr. John N. Hurty, Indianapolis, for many years secretary of the state board of health, is in St. Vincent's Hospital, following an operation for a tumor of the jaw.——The Paul Coble Post No. 26, American Legion, composed entirely of physicians and dentists, at the meeting in Indianapolis, January 23, elected Dr. Paul T. Hurt commander for the ensuing year.

Hospital News.—The Morgan County Memorial Hospital has been opened at Martinsville, with Miss Roth as superintendent.——The contract has been let for the erection of an addition to the Goshen Hospital, Goshen, at a cost of $25,000.——The Indianapolis City Hospital, of which Dr. Cleon A. Nafe is superintendent, has started a school for colored nurses.——It is planned to increase the capacity of Boehne Tuberculosis Camp, Evansville, from sixty to 350 beds. Dr. George Mills, assistant superintendent, Irene Byron Tuberculosis Hospital, Fort Wayne, is the new superintendent of the institution, assuming duty, April 1.——A $50,000 addition will be erected at the Martinsville Sanatorium, Martinsville, in the near future. The contract has been let.——An ordinance has been presented to the county commissioners appropriating $20,000 for the maintenance of a temporary psychopathic ward at the Indianapolis City Hospital.

IOWA

Annual Clinic Week.—The State University College of Medicine, Iowa City, will hold its thirteenth annual clinic, March 18-19. President Walter Jessup of Iowa University will address the meeting, Tuesday evening. Alfred N. Richards, professor of pharmacology, University of Pennsylvania, Philadelphia, will speak on "Some Recent Experiments on the Function of the Kidneys" on Wednesday. Clinics will be held at morning and afternoon sessions.

KENTUCKY

Hospital News.—A convalescent home will be erected by the Kosair Temple Nobles of the Mystic Shrine in Louisville, at a cost of $100,000.

Personal.—Dr. Van A. Stilley, Benton, has been appointed for a six year term on the state board of health to succeed the late Dr. William W. Richmond, Clinton.——Dr. Allen H. Shemwell and Dr. Campbell H. Johnson have been appointed to the newly created full-time board of health, Paducah.——Dr. William H. King, secretary of the Indiana State Board of Health, Indianapolis, gave an address in Louisville, February 20, during the health exhibition.

LOUISIANA

Graduate Courses.—The first of a series of graduate courses given by the staff of the Shreveport Charity Hospital closed February 9. The course comprised two hours a day in the outpatient department; three mornings each week was given over to medicine and general surgery and three mornings to specialties. The afternoon sessions were clinics supplemented by individual study of special cases. There were also a number of necropsies. The course lasted one month, and was free. The staff announced that a second course will be given April 28 to May 23.

MAINE

Care of Cripples.—In cooperation with the American Child Health Association the state and local agencies have recently inaugurated a campaign for the care, cure and education of every crippled child in the state. A list of the names and addresses of every crippled child has to be secured. Rotary clubs, grange organizations, women's clubs and Boy Scout groups are giving assistance. Hospital rooms for serious cases, treatment and special equipment will be provided.

Veteran Physicians Celebrate.—The Cumberland County Medical Society recently gave a banquet in Portland to six physicians who had practiced more than half a century. Dr.

John I. Sturgis, New Gloucester, graduated 1868 from Bowdoin Medical School, Portland; Dr. Augustus S. Thayer, Portland, graduated from the University of Pennsylvania Medical School, 1864; Dr. Abner O. Shaw, Portland, graduate of the Medical Department of Columbia College, New York City, 1863; Dr. Bertrand F. Dunn, Portland, graduated 1868 from Bowdoin Medical School; Dr. James A. Spalding, Portland, graduated from Medical School of Harvard University, Boston, 1870, and Dr. Joseph L. Bennett, Bethel, graduate of Bowdoin Medical School in 1869. Dr. S. P. Warren, Portland, gave an outline of the lives of these physicians and presented a set of gold cuff links to each "veteran."

MARYLAND

University Hospital Appointments.—Dr. J. M. H. Rowland, dean of the University of Maryland School of Medicine, has announced appointments at the hospital for the year beginning July 1, 1924, as follows: Dr. W. S. Love, Jr., resident in medicine; Dr. A. V. Buchness, resident in gynecology; Dr. I. P. Champe, resident in surgery; Dr. W. W. Wilson, assistant resident in surgery for nose and throat, and Dr. M. Alexander Novey, resident in obstetrics.

Personal.—Dr. Howard Bratton, Elkton, was recently elected president of the Elkton Chamber of Commerce.——Charles K. Edmunds, Ph.D., has been appointed to the newly created office of provost to Johns Hopkins University, Baltimore. Dr. Edmunds is now president of the Canton Christian College, Canton, China.——Prof. Edwin B. Wilson, Ph.D., professor of vital statistics, School of Public Health of Harvard University, gave a public lecture on "Statistical Inference" at the DeLamar lecture, February 25, at the School of Hygiene and Public Health, Johns Hopkins University.——Major J. H. Russell of the Indian Medical Service and director of public health, Madras, India, is in Baltimore studying at the city health department. Major Russell is also taking a course in vital statistics at the School of Hygiene and Public Health, Johns Hopkins University.

MASSACHUSETTS

Personal.—Dr. Roger Irving Lee, since 1914 Henry K. Oliver professor of hygiene at Harvard University, Boston, will resign at the end of the present college year.——Dr. Frederick L. Bogan has been elected chairman of the Boston School Committee to succeed Dr. David D. Scannell.——Dr. Morton Prince, Boston, gave a course of lectures at the University of Cambridge, England, on "Subconscious Phenomena," commencing February 12.——Dr. J. Ubald Paquin was elected chairman of the board of health of New Bedford at the annual meeting, February 5.

Legislative Appropriations.—The Committee on Ways and Means of the house and senate sitting conjointly submitted in the annual budget of estimates and recommendations for appropriations the following: for the board of registration in medicine, $9,000; board of dental examiners, $6,000; board of registration in pharmacy, $13,000; board of registration of nurses, $5,200; board of registration in embalming, $2,400; board of registration in optometry, $2,700; board of registration in veterinary medicine, $900; service of the department of industrial accidents, $182,600; department of mental diseases, $146,000, and including separate requests for various hospitals, $7,562,258; service of the department of public welfare, $38,100; public health service for the manufacture and distribution of arsphenamin, $10,345.

MICHIGAN

Suicides in Michigan.—Suicide has decreased in the last two years, according to the state department of health. In the last five year interval, 1921 marked the high tide with 451 suicides. Since 1921 suicide rates have dropped. There were 450 in 1922, and 432 last year. Of the 432 suicides in Michigan in 1923, 320 were men; 112, women. Men, it appears, are far more likely to commit suicide between the ages of 30 and 50. Of the 320 men that committed suicide last year, 137 did so within this age group, while fifty-four of all the suicides among women occurred between the ages of 15 and 40. Firearms was the most used method; next hanging, then gas, cutting or piercing instruments, corrosive substances and drowning. Eighteen employed other miscellaneous methods.

MISSISSIPPI

Chiropractors Lose.—The house, February 7, made an unfavorable report on the bill to create a state board of chiropractic examiners. The senate committee on public health later made a similar report. Two years ago the Mississippi chiropractors made an unsuccessful fight for recognition.

MISSOURI

Bacteriology Endowed at Washington University.—The General Education Board of New York has donated $400,000 to Washington University, St. Louis, for the endowment of a department of bacteriology and preventive medicine in the medical school, it was announced, March 1. This makes approximately $4,400,000 that the Rockefeller Foundation has given the university.

African Trophies.—Dr. Richard L. Sutton, Kansas City, who went to British East Africa as a special representative of the department of natural history, University of Missouri, has returned with a large number of trophies and other material for the university. On March 4, he addressed the Jackson County Medical Society in Kansas City on "Medicine and Sport in Brightest Africa."

NEW YORK

Foreigners in Hospitals.—According to the statistical report of the state hospital commission taxpayers of New York paid more than $3,000,000 last year to maintain alien patients in the thirteen civil state hospitals. The report states that of 41,302 patients in the hospitals in 1923, 17,810, or 43.1 per cent., were foreign born. Of these 7,370 had been naturalized.

Sterile Obstetric Packets.—The state department of health announces that its division of maternity, infancy and child hygiene has devised a model obstetric bag for emergency use by physicians and midwives. The department advises local organizations to keep these supplies in readiness and offers to furnish on request directions for making the packets.

Hospital Staff Resigns.—Because of a difference of opinion in regard to hospital administration, twenty-eight members of the medical staff of the Southside Hospital, Bayshore, L. I., tendered their resignations to take effect in two weeks. The physicians claim that in their efforts to bring the hospital up to the prescribed standards they have not had full cooperation of the board of managers, and have declared that they will not tolerate subordination to a board of managers in matters relating to medical affairs.

A Conference on Narcotics.—At a recent conference called by the state health commissioner, Dr. Matthias Nicoll, Jr., the subject of appropriate legislation for the control of narcotics was discussed. Resolutions were passed which propose that a new bill be drafted under the guidance of Profs. J. P. Chamberlain and Stephen P. Anderton and Dr. Carleton Simon. Such measure should incorporate features which would give the state and local police power to enforce the Harrison Narcotic Law and to segregate and incarcerate the criminal addict. Efforts will also be made to incorporate in the bill a provision for detention by legal means of the patient who voluntarily commits himself only to demand freedom at the end of three or four days, when he begins to feel the effects of withdrawal.

Legislative Notes.—An antivivisection bill, similar to those brought before the legislature in past years and sponsored by Senator John P. Ryan and Assemblyman Samuel Mandelbaum, has been referred to the Committee on Codes. It is urged that every county legislative chairman write to each member of the senate and assembly committees on codes, as well as to individual representatives asking them to object to the bill should it appear on the floor.——Senate bill No. 700, sponsored by Senator Jeremiah F. Twomey, adds to the list of occupational diseases for which compensation is payable diseases due to poisoning by benzine derivatives, gasoline and its derivatives, skin disease due to oils, and cutting compounds, and silicosis or its sequels.——Senate bill No. 781 amends the practice of chiropody and podiatry so as to prevent any person not legally registered as a chiropodist from practicing chiropody. This bill, if passed, would deprive physicians from practicing a part of their profession.

New York City

Memorial to Dr. Holt.—A memorial meeting in commemoration of the life and services of Dr. L. Emmett Holt was held at the New York Academy of Medicine the evening of March 12.

Allies Dine.—The "Allied Professions of Brooklyn," a group of Greenpoint physicians, dentists and druggists held their annual dinner, March 5. Dr. Frank D. Jennings was toastmaster. Dr. Charles A. Gordon, president of the Kings County Medical Society, Dr. James Steele and others gave addresses.

"Spinologist" Arrested.—According to reports, Henry H. Austin of the Wentworth Health Institute, 103 West One Hundred and Twenty-Fifth Street, where a sign announces that "spinology" is practiced, was held, March 3, by Magistrate Renaud in $2,500 bail on a charge of practicing medicine without a license.

Rename Welfare Island.—Welfare Island, which for the last two centuries has been called Blackwell's Island, received its present name because the public regarded the island as undesirable account of the prison. A project is now under way to remove the prison and the hospitals from the island and to leave only the old people's home. The plan provides for a convalescents' park on the island and for another change of name. It is now suggested that the island resume the name which the Indians gave it—Minnahanock. These plans have been embodied in a bill which will be brought before the legislature.

Personal.—Dr. Robert J. Carlisle has been appointed professor of medicine at the University and Bellevue Hospital Medical College to fill the vacancy caused by the death of Dr. Herman M. Biggs.——The section of pathodontia of the First District Dental Society of the state of New York will give a dinner in honor of the founder of the section, Meyer L. Rhein, D.D.S., M.D., at the Hotel Commodore, March 28.——Dr. William H. Park has been elected a foreign member of the Academy of Medicine of Paris. Dr. Park has been professor of bacteriology and hygiene at the New York University since 1894.——Dr. Hideyo Noguchi of the Rockefeller Institute has returned from Bahia where he completed a campaign against yellow fever.

City Bars Medical Film.—The exhibition of a film taken in the Wertheim Clinic, Vienna, dealing mainly with obstetrics, has been stopped by the board of health and commissioner of licenses after it had been shown to an audience of physicians and nurses at the United Engineering Societies, March 6. The Lowy Film Company has filed a complaint alleging that a number of tickets have been sold to physicians and nurses and a large expense incurred in showing the film after it had been approved by the Motion Picture Commission of New York. The complaint asks $10,000 damages. The film it is claimed has been shown in other cities and 95 per cent. of the tickets have been sold to physicians and nurses through the mails. It is further claimed that tickets were sold at the door only to physicians and nurses.

Academy Proposes Amendment to Act of Incorporation.—A proposed amendment to the act of incorporation of the New York Academy of Medicine was submitted to the members at the academy, February 28. This measure, which was approved, is entitled "An act to amend generally the powers and privileges of the New York Academy of Medicine." It calls for a repeal of the act of incorporation of 1851, and for an amendment of the Act of 1877, conferring certain powers and privileges on the institution. It reads as follows:

> SECTION 1.—The present board of trustees of The New York Academy of Medicine, as now organized, shall be continued, and shall consist of not less than ten or more than fifteen trustees, the number to be determined by the constitution of the corporation. The directors shall be classified into five classes, so that the term of office of all the directors of one class only shall expire each year. On any vacancy occurring otherwise than by expiration of term, a successor shall be elected for the remainder of the unexpired term. On any vacancy occurring by expiration of term, a successor shall be elected, who shall hold office for five years, and until his successor shall have been elected and shall have qualified.

The new act provides for the repeal of that section which limits the income of the academy and the amount of principal which it may own.

NORTH CAROLINA

Nutrition Classes.—Under the auspices of the Durham County Board of Health and the board of education $600 has been appropriated to conduct four classes, two in Durham and two in Durham County to determine the beneficial effects of proper nutrition on the actual school work of the children.

OHIO

Chiropractor Fined.—According to reports, Roy Giehls, chiropractor, Maysville, was recently fined $50 and costs for practicing medicine without a license.

Food Handlers to Be Examined.—Nearly 10,000 men and women handling food in restaurants, soda fountains, drug stores, groceries and other establishments in Columbus will be required to undergo two medical examinations annually according to a new ruling by the city board of health.

OREGON

State Tuberculosis Meeting.—At the annual meeting of the Oregon Tuberculosis Association in Portland, February 28, A. L. Mills was reelected president. Drs. Grover C. Bellinger, James Marr Bisaillon, Edward A. Pierce and Frederick D. Stricker were elected to the executive committee.

PENNSYLVANIA

Statues of Provosts.—Statues of Edgar Fahs Smith, Ph.D., provost of the University of Pennsylvania, from 1911-1920, and of Charles Custis Harrison, LL.D., provost from 1895-1910, will be erected on the university campus. Mr. John C. Bell, a member of the board of trustees, has donated the statues.

Memorial to Founder.—At the annual meeting of the staff of the Harrisburg Hospital, in January, it was announced that the Dunott-Coover Memorial Operating Room Fund of the Harrisburg Hospital was in operation, and that the board of managers had accepted the deed of trust. The income from the fund is under the control of the staff through a committee of three members elected for a term of ten years. The Dunott-Coover Memorial was established by Dr. Frederick W. Coover, who presented securities, the interest from which is for the purchase of instruments for the surgical department. This is a tribute to the memory of Dr. Dunott who founded the surgical service fifty years ago.

Philadelphia

National Congress on Health.—The Philadelphia Medical Society has decided to organize a Sesqui Centennial National Medical or Health Congress to be held in 1926 at Philadelphia, for the purpose of signalizing the progress of medicine since 1876.

Anniversary of Pharmacy College.—The one hundred and third anniversary of the founding of the Philadelphia College of Pharmacy and Science was celebrated, February 23. Admiral William C. Braisted, M.D., presided. "Pharmacy—As Was and Is," a dramatic sketch in two acts, one of a drugstore in 1821 and one of a modern drugstore, was presented.

SOUTH DAKOTA

Society News.—At a meeting of the Huron Medical Society, February 16, Dr. Francis E. Clough, Lead, president of the state medical association gave an address. Dr. George W. Launspach spoke on "Bronchopneumonia" and Dr. Howard L. Saylor on "The South Dakota Public Health Clinic."

TENNESSEE

Chiropractor Arrested Twenty-One Times.—The office of "Dr." D. W. Medcalf in Jackson was closed by order of the district attorney general, February 23, and he was enjoined from practicing medicine in any form. According to reports, Medcalf was recently fined $25 for practicing medicine without a license; previously he came from Fulton, Ky., where he admitted on the witness stand that he had been arrested twenty-one times. The state board of chiropractic examiners announce that his chiropractic license will be revoked.

TEXAS

Clinic for Drug Addicts.—Under the auspices of the White Cross a clinic will be opened in Houston for the examination and treatment of drug addicts. Patients must bear their own expenses and must submit themselves to the direction of the clinic for a period of two years.

New Appointments.—Dr. Malone Duggan, San Antonio, has been appointed state health officer to succeed Dr. William H. Beazley, Houston, who resigned.——Dr. Jackson Stewart Cooper, Abilene, has been appointed a member of the state board of medical examiners to fill the vacancy caused by the death of Dr. George H. Sandifer, Abilene.——Dr. Claude A. Searcy, Bryan, has been appointed health officer of Brazos County.

Society News.—At the annual meeting of the Hunt County Medical Society, Drs. Preston W. Pearson, Emory, and Henry W. Maier, Greenville, were elected secretary and treasurer, respectively.——Potter County Medical Society elected Dr. George T. Vineyard, president, and Dr. Richard Keys, secretary-treasurer.——Dr. Harrold A. Bachmann, Chicago, addressed the Harris County Medical Society, January 19, on "Deep Roentgen-Ray Therapy."——Dr. Edmond Doak, Taylor, was elected president and Dr. William G. Pettus, Georgetown, secretary, of the Williamson County Medical Society at the annual meeting.

VERMONT

Dust Investigation.—Dr. A. E. Russell, assistant surgeon, U. S. Public Health Service, has arrived in Barre to undertake an investigation on health conditions in the stonesheds, with special reference to the effects of granite dust.

VIRGINIA

Chiropractors Fined.—According to reports, T. J. Oakes and J. L. Tewell, chiropractors of Danville, were fined $50 each in the police court, February 9, on a charge of practicing medicine without a license.

Child Health.—Dr. Richard A. Bolt, director of medical service, American Child Health Association, is in Richmond to organize a central children's health clinic. A central diagnostic clinic will be available and all health facilities in Richmond will be correlated with the clinic to centralize the giving of medical attention to the needy children.——Experts will be provided by the court in Richmond to examine the mentality of incorrigible children who are taken before the Juvenile Court. The city council has appropriated $1,000 for this purpose.

WEST VIRGINIA

Medical Education.—President Ashworth has announced the appointment of the following members to compose the committee on medical education for the state: Dr. John N. Simpson, Morgantown, chairman; Dr. William T. Henshaw, Charleston, and Dr. William S. Fulton, Wheeling. He has reappointed the hospital committee which is composed of Drs. Charles M. Scott, Bluefield, chairman; Frank Le Moyne Hupp, Wheeling, and Arthur P. Butt, Elkins.

WISCONSIN

Child Welfare Stations.—With the $2,500 obtained from a health show conducted some months ago by the health department, the city health commissioner announces that three new child welfare stations have been established in Milwaukee. Milwaukee's child welfare stations have recently increased from seven to twenty. The remainder of the fund from the show has been turned over to the county dispensary for the enlargement of the mental hygiene department.

CANAL ZONE

Quarantine Experts Meet. — The quarantine conference started, February 25, at Panama with delegates from Ecuador, Peru, Chile, France, Panama, the Pan-American sanitary office and the West Indies. Dr. August S. Boyd, Panama, was elected permanent president and W. O. Rucker, chief of the Panama Canal Quarantine, secretary. Practical demonstrations were given of municipal sanitation, ship fumigation and the detention of contagious cases.

CANADA

Courtesy to Visiting Physicians. — The Royal Society of Medicine has announced that all medical men from the dominions and colonies visiting the British Empire Exhibition at Wembley this spring will be given the privileges of the society's house in London from May onward.

Smallpox Increasing.—Public schools and churches have been closed and public gatherings forbidden in Perth, Amherstburg, Walkerville, Windsor and Maidstone, Ont., because of smallpox. Ten new cases have been reported in Perth, nine at Windsor and five at Maidstone. Dr. Henry S. Vaughan, city health commissioner of Detroit, Mich., has requested a quarantine by the U. S. government against Walkerville and Windsor, Ont. Vaccination is being ordered by the various health departments.

An Undergraduate Medical Journal.—Students of the University of Toronto Faculty of Medicine have undertaken to publish the *University of Toronto Medical Journal*, "an undergraduate publication." This, as far as known, is the first venture in which medical students have attempted such work. The first number has thirty-five pages, six articles by specialists, editorials, reviews, society news and notes and comments. The editorial board is composed of D. M. Meekison, E. P. Scarlett and R. S. Stone, all seniors.

Banting Research Foundation. — The proposed Banting Research Foundation has been established (THE JOURNAL, Nov. 24, 1923, p. 1797). The purposes of the foundation have been defined thus:

(a) To provide, in the first instance, further funds for the support of the Banting and Best Chair of Medical Research at the University of Toronto.

(b) To establish a fund for the adequate financial support of such scientific workers as may have proposed definite problems of medical research, and for whom funds are not otherwise available. Such assistance may be given to persons working in the University of Toronto or elsewhere.

All arrangements in connection with the collection of the principal and the expenditure of the income of the fund have been vested in a board of trustees, the members of which are appointed for a term of three years subject to reappointment at the end of that time. The following trustees have been appointed: chairman, Sir Robert A. Falconer, president of the University of Toronto; treasurer, Lieut. Col. R. W. Leonard, member of the board of governors of the university; Rev. Canon H. J. Cody, chairman of the board of governors of the university; C. S. Macdonald, manager of the Confederation Life Association; Dr. W. E. Gallie, surgeon-in-chief, Hospital for Sick Children, Toronto; Dr. John G. FitzGerald, professor of hygiene and preventive medicine and director of the Connaught Laboratories of the university; Prof. V. E. Henderson, professor of pharmacology, University of Toronto, and Mr. John W. Rogers, Toronto. Subscriptions to the fund will be welcome and should be made payable to the Banting Research Foundation, Toronto, Canada.

GENERAL

Pharmacists and Fake Remedies.—At a recent meeting in Des Moines the Northwestern Pharmaceutical Bureau decided to inaugurate a campaign throughout the northwest states to inform the public regarding fake remedies.

Hospital Libraries.—There will be a meeting of the Hospital Libraries Round Table during the conference of the American Library Association at Saratoga Springs, N. Y., the week beginning June 30. Hospital officials interested are invited to be present or to send delegates. Brief reports of hospital libraries are requested before June 1 by Miss E. K. Jones, Room 212 B, State House, Boston.

Federation Elects Officers.—At the annual business meeting of the Federation of State Medical Boards, held in Chicago, March 4, the following officers were elected: president, Dr. David A. Strickler, Denver; president-elect, Dr. Thomas McDavitt, St. Paul; vice president, Dr. H. M. Platter, Columbus, Ohio; secretary-treasurer, Dr. Walter L. Bierring, Des Moines, Iowa; member, executive committee, Dr. Alexander MacAlister, Camden, N. J.

Compliments of the American Public Health Association.—Every state, city and county health officer in the United States and Canada, whether on part or full time, who is not a member of the American Public Health Association, will receive a complimentary copy of the March issue of the *American Journal of Public Health*. This number is a special health officers' number designed to be useful to all kinds of public health administrators.

Eleven Million in Endowments.—Further reports from the Carnegie Foundation of New York state that Johns Hopkins University, Baltimore, will receive $2,000,000 for building and endowment; the New York Academy of Medicine was voted $1,000,000 for a new building; a conditional grant of $600,000 was made to aid the consolidation of Kings College and Dalhousie University, Halifax, Nova Scotia, and $100,000 was voted for a Catholic college in connection with the University of Alberta, Edmonton, Canada. Cash payments of $5,420,000 were made to beneficiaries during the last year and new appropriations amounting to $6,415,000, of which two-thirds go to medical and legal projects, were authorized.

Social Hygiene in Churches. — At the Trinity Episcopal Church, Pittsburgh, arrangements for a seven weeks' program of lectures on modern social problems and conditions which confront the youth of today have been made. Prof. T. W. Galloway spoke, February 12 and 13, on "The Ethics of Youth, A Challenge to the Present Generation."——A large institutional church in the Harlem section of New York has started classes on sex education for negroes. The work is under the direction of Dr. Sarah Brown of the Y. W. C. A., and Mr. Nichols of the American Social Hygiene Association. An advisory board of ten persons consisting of psychologists, physicians, lawyers and social workers is aiding in working out methods of instruction.

Society News.—The National Tuberculosis Association will hold its annual convention in Atlanta, Ga., May 5-9.——The Women's Medical Society of New York will hold its annual meeting in Rochester, N. Y., April 21.——The Virginia Conference of State Health Workers was held, February 25-29, in Richmond.——The Canadian Tuberculosis Association will meet in Ottawa, Ont., April 8-10.——The annual meeting of

the American Physical Education Association will be held this year in Kansas City, Mo., April 23-24.——The annual meeting of the National Organization for Public Health Nursing will be held in Detroit, June 16-21. Six scenes representing prenatal nursing, infant welfare, school industrial, tuberculosis and community nursing have been prepared by the organization for the Smithsonian Institution, Washington, D. C.——The annual meeting of the American Laryngological, Rhinological and Otological Society will be held in St. Louis, May 29-31, under the presidency of Dr. Hanau W. Loeb. Prof. J. Sendziak, Warsaw, Poland, will be guest of honor.

Committee on Tax Reduction Holds Hearings.—The Senate Committee on Finance has begun preliminary work in the consideration of the Tax Reduction Bill which passed the House, February 29. According to plans, the committee will not hold public hearings; and individuals desiring to secure amendments to the bill or to have additional provisions considered will be required to present the subject in writing to the committee. It is understood, however, that members of the Senate or House will be permitted to appear before the committee. Under these plans, it is expected to expedite the work of reviewing the House bill and to make a prompt report of the measure to the Senate. The House passed the bill without reducing the $3 per year fee required of physicians who use narcotics in their profession, and which tax results in a profit of approximately $250,000 to the government. Neither was provision made for deducting on income tax returns the expense of attending meetings of medical societies or conventions; nor the expense of traveling away from home in the pursuit of their professional duties.

New Bill on Serums and Vaccines.—On Feb. 28, 1924, Mr. Rathbone introduced the following bill; which was referred to the Committee on the District of Columbia and ordered printed:

To amend sections 1, 2 and 5 of an Act entitled An Act to regulate the sale of viruses, serums, toxins and analogous products in the District of Columbia, to regulate interstate traffic in said articles, and for other purposes, approved July 1, 1902.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that section 1 of an Act entitled An Act to regulate the sale of viruses, serums, toxins and analogous products in the District of Columbia, to regulate interstate traffic in said articles, and for other purposes, approved July 1, 1902, is amended by adding thereto the following subdivision:

(c) Unless the statement "No U. S. Standard of Potency" shall appear in plainly legible type on the outside label or wrapper of each package containing any product for which no official standard or test has been established, with, however, such exceptions as may be provided by the regulations made in accordance with this law.

Sec. 2. That section 2 of such Act is amended to read as follows:

That no person shall falsely label or mark any package or container of any virus, serum, toxin, antitoxin or product aforesaid, nor alter any label or mark on any package or container of any virus, serum, toxin, antitoxin, or product aforesaid, so as to falsify such label or mark; and provided further, that a license will not be issued for the preparation of any virus, serum, toxin or analogous product if advertised so as to mislead or deceive the purchaser, or if the package or container in which the same is intended to be sold, bartered, exchanged, or shipped bears or contains any statement, design, or device which is false or misleading in any particular.

Sec. 3. Section 5 of such Act is amended by adding thereto the following sentences:

That the Secretary of the Treasury be, and he is hereby, authorized to decline to license any manufacturing establishment or any product made by any manufacturing establishment when in his judgment the public interests would be served by so declining the license. The Secretary of the Treasury is also authorized to cause the cancellation of the license already held by any such manufacturing establishment or for any product made by any such establishment, when, in the judgment of the Secretary of the Treasury, the public interests would be served by such cancellation.

Annual Meeting of Society for Control of Cancer.—At the eleventh annual meeting of the American Society for the Control of Cancer, held in New York, March 1, the financial condition of the society was reported, officers for the ensuing year were elected, the work done during the last year was described, and the program for 1924 was discussed. In 1923 the work was confined chiefly to education of the public in the early signs of cancer. During the last year the society's administrative work has been reorganized under the new managing director, George A. Soper. A statement of principles and policies has been adopted which will serve as a guide in the future development of the society's undertakings. At present the society maintains a central office with a small paid staff and a large volunteer field organization consisting chiefly of committees throughout the United States and Canada headed by physicians. There are about 2,500 paying members. The program for the coming year contains three main features. First, the work of educating the public will be continued. Second, the society's headquarters will collect and systematize statistics and other data relating to cancer with a degree of thoroughness much beyond that which has hitherto been attempted. Third, an effort will be made to assist physicians to acquire greater skill in diagnosing cases and to exercise greater promptness in dealing with cancer cases when they recognize them. It is a part of the program of the society to encourage the formation and conduct of cancer clinics. These clinics are not intended to replace the attention which is appropriately to be had of experts by persons thoroughly competent to pay for the attention which they receive, but to assist patients in a less fortunate position to get the care upon which their lives depend. Through the efforts already made by the society, or as a result of interest so aroused, clinics have been established in a number of cities. The officers of the society for the coming year include Dr. Howard C. Taylor, New York, vice president and chairman of the executive committee; Dr. Edward Reynolds, Boston, chairman of the advisory council; Drs. Clement Cleveland, New York, George E. Armstrong, Montreal, Canada, and Rudolph Matas, New Orleans, vice chairmen of the advisory council. A feature of the program for the coming year is the establishment, at the society's headquarters, of what may be called a laboratory of fact and opinion with regard to the cancer problem. The knowledge which can be put to helpful, practical use with regard to cancer is so limited, and the need of information so great, that it is felt to be desirable systematically to collect all knowledge which may be helpfully applied toward the control of this disease. The society's monthly bulletin called *Campaign Notes* will be enlarged and improved, and there will be issued annually a yearbook of information summarizing the advantages made during the preceding twelve months in cancer research and treatment. During the summer of 1924, courses of lectures dealing with the cancer problem will be given at Columbia University by persons connected with the society under the auspices of the summer school of public health. One of these courses will be given by Dr. Francis Carter Wood, of the Institute for Cancer Research at Columbia, and another by George A. Soper, Ph.D., managing director of the society.

LATIN AMERICA

Public Health Building in Honduras.—A well-equipped building has been erected at Tegucigalpa, Honduras, to house the offices and central laboratories of the National Health departments. Dr. Augustin Santiago Brizio, director general of public health of the Republic of Honduras, will formally dedicate the building in the near future.

The Public Health Service in Colombia.—The annual report of the director of the public health service in Colombia, Dr. Pablo García Medina, states that in Colombia, the United States and Venezuela the authority of the chief of the public health service is independent of other officials or councils. The report covers 256 pages. There has been no focus of yellow fever in Colombia since 1905. One of the comparatively recent achievements was the arrangement for the production of antiserums for local snake venoms. Smallpox is being vigorously combated at the few points where it has appeared.

FOREIGN

No More Physicians Needed in South Africa.—The Witwatersrand branch of the British Medical Association, at a recent meeting in Johannesburg, took note of an item published by a leading physician in the local daily paper to the effect that South Africa could find openings for 8,000 medical men. The medical association, in resolutions, stated that this item would do a great deal of harm by encouraging medical men from overseas to immigrate to South Africa, and it was their opinion that the country was not in a position to support more than 1,800 practitioners, which number it already has.

French Study Athletics.—The French Academy of Medicine has appointed a committee of eleven members to study the effects of modern athletics. Tests recently taken at the Olympic games and reported to the academy revealed an alarming number of cases of "athletic heart" among contestants. After the committee completes its examination it is probable that certain sports will be condemned as harmful. Dr. Boigey, chief of the school at Joinville, reported that runners in a 3,000 meter course, during from nine to eleven minutes, were troubled with cardiac disturbances lasting from one to five hours.

Insulin in the Courts.—The *Nederlandsch Tijdschrift* relates that Professor Laqueur has patented the name "Insulinum Neerlandicum" for the insulin he is making in the Netherlands in accordance with the directions of the Toronto insulin authorities. A Netherlands pharmacist has applied for trademark rights on the name "Insulin Blomberg," and Dr. J. Koopman endorses the pharmacist's claim, saying that the

word "insulin" is not protectable any more than "blood" or "bile" could be protected by a trademark, as Schäfer introduced the term "insulin" in 1916. The patent office rejected the pharmacist's plea, and he appealed to the courts. The court at the Hague has decided in his favor, and ordered the inscription of his trademark name, but Laqueur appealed at once to a higher court, where the matter is now pending.

Deaths in Other Countries

Sir Kennedy Dalziel, surgeon to the Western Infirmary, Glasgow, Scotland, died, February 10, aged 64. Dr. Dalziel was an associate of Sir William Macewen and has served as lecturer in medical jurisprudence and professor of surgery in Andersons' College, Glasgow; lecturer on anatomy in the Western Medical School and the Glasgow Medical School.——Dr. **W. Westropp Brereton,** professor of surgery, University College, Galway, Ireland, since 1888, aged 77.——Dr. **G. Badaloni,** since 1906 chief of the public health service in the Rome district, aged 70.——Dr. **F. Basavilbaso,** professor of otorhinolaryngology at the University of Buenos Aires, president of the Círculo Médico Argentino and vice president of the Otorhinolaryngologic Society, lost his life trying to rescue servants from his burning home.——Dr. **E. Dupuy,** Paris, a collaborator of Brown-Séquard, vice president of the Société de biologie, author of works on nervous diseases, aged 77.——Dr. **O. Heinze,** Leipzig, a leader in the organization of the profession in Germany, aged 82.——Dr. **H. Köllner,** professor of ophthalmology at Wurzburg, aged 43.——Dr. **A. Ewald,** emeritus professor of physiology at Heidelberg, aged 75.——Dr. **G. Zacher,** Berlin, whose works on national health insurance are classic, aged 68.——Dr. **H. Grün,** Vienna, aged 52.

Government Services

A Department of Welfare or Health

The Secretary of the Interior, Dr. Hubert Work, has outlined a new plan for the reorganization of the Interior Department which he has submitted to the joint congressional committee on government reorganization. Secretary Work's plan provides for four divisions of his department: Bureau of Education, Bureau of Public Health, Bureau of Public Works and Bureau of Territorial Affairs. The chairman of the National Health Council has been authorized to appoint a committee to consider the whole matter of a Federal Department of Welfare or Health. Dr. Work suggests that the Surgeon General of the U. S. Public Health Service should be *ex-officio* secretary of the proposed Bureau of Public Health.

Salaries in Indian Service

The Secretary of the Interior has transmitted to the Personnel Classification Board recommendations for the readjustment of salaries of physicians in the Indian Service. His recommendations are made in response to a request of the Personnel Classification Board for all field service positions under his supervision which are required to be graded in certain classes under the terms of the classification law. Secretary Work's report shows that there are 186 physicians in the Indian Service; that their basic salaries are $206,095; that the proposed minimum salaries recommended by Secretary Work are $316,770; and proposed maximum salaries are $410,510. These figures show that the average basic pay of physicians in the Indian Service at present is the small sum of $1,108 per year, to which should be added a bonus of $240. The annual reports of the Interior Department have for years deplored the insufficiency of the Indian Medical Service. The attention of Congress has repeatedly been brought to the meager salaries of these physicians and to their unattractive living and working conditions. These professional men attending to the health of Indians receive less pay than a day laborer. The recommendations in Secretary Work's report amount practically to a 50 per cent. average increase to all physicians in the Indian Service, on the basis of minimum increases and 100 per cent. on maximum increases. It will, however, require additional legislation by Congress to put into effect the salaries recommended in this report. When such legislation will be enacted is uncertain. The Classification Board has been bitterly criticized by certain members of Congress at this session, and a movement in on foot to abolish it and to transfer its powers to the Civil Service Commission.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 18, 1924.

The St. Andrews Institute for Clinical Research

The St. Andrews Institute for Clinical Research was established in 1919 by Sir James Mackenzie. After a successful consulting career in London, he found that his practice did not supply opportunities for the prolonged observation of patients which he deemed necessary for his investigations. In the height of his fame, he retired to the small and remote university town of St. Andrews in Fifeshire, where the population is small and has less tendency to drift away than in the larger centers. He had started medical life as a general practitioner, and had passed a large part of it in manufacturing towns, where he laid the foundations of his researches, which have revolutionized cardiology. But he had always had an original outlook also on symptomatology in general, as his extensive writings show. He holds that our knowledge of disease is very defective on fundamental points, especially in regard to beginnings. During his early career he was brought into contact with the many minor ailments that afflict the community and which only occasionally or at a hopeless late date attain the dignity of a diagnosis on the usual anatomic basis.

When he came to St. Andrews, he wanted the cooperation of the local profession in investigations to remedy these defects in medical knowledge, and therefore founded the institute, which differs from all others in the world in that the object is to make records not of diseases but of diseased persons. For a staff he had to take the physicians in the town and to train them in his methods. This was a delicate procedure because they were men already many years in practice. They were first tempted to the Cottage Hospital by his clinical demonstrations, at which he invested trivial cases with an interest and a significance undreamed of by his audience. He spent months in convincing them of their ignorance of very ordinary complaints and in instilling his ideas as to how progress was to be made. Then he started the institute, to which the physicians were invited to bring their cases for examination and discussion. It was soon found that anatomic and physiologic questions arose which required more knowledge than was possessed by the clinical staff, so an anatomist and a physiologist were added. Later a chemist, pathologist and radiographer were added. The work of the institute consists mostly in making records of cases of the nondescript, general practice type. Several hours may be spent on one case, and any laboratory investigations deemed necessary are carried out.

The case reports are read and discussed at a weekly meeting of the staff, and any comments or suggestions for further investigation are noted. Patients are recalled at intervals, and any change in their condition is recorded. A brief abstract of the case is made, so that the main features may be seen at a glance. All the symptoms are indexed, and a very perfect system of cross-indexing enables any symptom to be easily referred to when required for research purposes. One session of two hours a week is devoted to reading and discussing case records. A similar session is devoted to more or less academic discussion of medical problems. The academic discussions, which at first appeared to be far removed from practical work, ultimately led to results of much significance. It was from them that emerged Sir James Mackenzie's views that symptoms are disturbances of reflex action. It was recognized that the efferent tracts for reflexes have been largely worked out, but that much remains to be done on the

afferent tracts. Among the many ordinary symptoms that have engaged attention at the institute are exhaustion, pain, breathlessness and pallor. Though great advances have not been made in the elucidation of their mechanism, the ignorance and erroneous conceptions that prevail as to them have been recognized.

The Maternity Bonus in Australia

One of the more socialistic provisions of the socialistic Insurance Act is the granting of a bonus on the birth of children in Australia, where a labor government is not a novelty. This has been done since 1912, the amount given being $25. When the proposal was first made, a deputation waited on the prime minister, Mr. Fisher, to ask that, instead of the bonus, arrangements should be made that every woman should have proper care and treatment during her confinement, but without success. It was thought at first that the bonus would be claimed only by those who were not well-to-do; but it is claimed by all women who give birth to children, irrespective of their financial position. For the year ending June, 1922, the amount paid in the Australian commonwealth amounted to $3,500,000 of which about $75,000 was spent in administration. Before the Victorian National Council for Women, a woman physician, Dr. Edith Barret, has read a paper, entitled, "Is the Motherhood of Australia Getting the Best Value from the Maternity Bonus?" and answers, "No." On its introduction, the supporters of the measure claimed that it would increase the birth rate, or at least arrest the decline, and diminish maternal and fetal mortality. But since the introduction of the bonus, the birth rate has steadily declined. Child-bearing has not been rendered any safer. The decline in infant mortality has been trivial, and cannot be traced to the bonus. The rates from 1914 to 1921 are 71.5, 67.5, 70.3, 55.8, 58.6, 69.2, 69.1 and 65.7. Dr. Barret recommends the introduction of maternity homes, as in New Zealand, where the costs work out about the same per labor as the bonus.

Influenza Epidemic

A widespread epidemic of influenza has prevailed for some weeks throughout the country. The disease is of a mild type, so that its prevalence is out of all proportion to the effects on the mortality returns. The deaths ascribed to influenza in the last weekly returns were 154 in London and 501 in the 105 large cities. But these do not represent the total loss. There has been a considerable rise in the mortality attributed to respiratory and heart disease, which no doubt is partly due to influenza. Comparing the weeks ending February 9 and 10 of this year and of last year, the contrast is striking.

London

	1924	1923
Deaths from bronchitis	234	87
Bronchopneumonia	191	51
Heart diseases	303	186
Notifications of pneumonia	435	98
Mean temperature of the air	43.8 F.	42.3 F.

As the temperature differed so slightly in the two periods, the difference cannot be ascribed to it. Of the 154 deaths ascribed to influenza, forty were in persons aged between 55 and 65; thirty-five in persons between 65 and 75, and thirty in persons of 75 and upward.

The New Epidemic Danger: The Aeroplane a Source of Disease

At the last session of the Bureau international d'hygiène publique, the revised draft of the International sanitary convention of Paris was settled. It deals with measures for the prophylaxis of plague, cholera and yellow fever; but, as the original document was written ten years ago, it could not have taken note of the possibility of the spread of diseases by aviation. Calling attention to this danger, the medical correspondent of the *Morning Post* points out that today an outbreak of smallpox or cholera anywhere in the world may be an immediate concern anywhere else. If passenger traffic by air develops to the extent which not long ago it promised to do, we shall be face to face with a problem of quarantine in which the difficulty will be to secure the public from infection by flying visitors without compelling them to undergo vexatious restrictions. The majority of pathologic bacteria have limited powers of growth outside the body, which means that infection for the most part passes from man to man. This danger is much increased when a man meets another who, on the same day, was separated from him by a distance of 500 miles or more. The risk is increased by the part which may be played by "carriers."

A Surgeon's Tax Grievance

The high taxation due to the war has considerably modified the ways of life of those who formerly could be described as in comfortable circumstances or wealthy. A new injustice is brought to light by the letter to the *Times* of a surgeon, evidently enjoying a large practice, who has decided because of his age (69 years) to avoid in future the strain and responsibility inseparable from surgical operations. He wished, however, to continue to accept consultative work, and he knows that would have been welcome to his colleagues in medicine. More than three fourths of his income has heretofore been derived from operative work. He inquired from the officials concerned whether any deviation would be permitted from the ordinary method of assessment on the three years' average, and learned that there would not. This would mean that if he continued to do only consultative work, the modest income derived from it would be more than swallowed up by the tax, and in addition he would again be mulcted in supertax. He is therefore compelled to give up paid professional work while still continuing honorary work—a gross injustice to himself and a deprivation of the community of ripe experience. This is a new example of the old adage, "The law is an ass," for revenue is lost by preventing this man from working.

MADRID

(From Our Regular Correspondent)

Jan. 30, 1923.

The Cause of Vomiting in Pregnancy

One of the most prominent Spanish obstetricians, Dr. Udaeta, in a lecture presented his views on the causes of vomiting in pregnancy. There is little question that salivation, herpes, headache, albumin and eclampsia are symptoms of intoxication caused by the products of gestation. As soon as pregnancy ends, these symptoms subside, and most women rapidly recover. Each person has his own characteristic albumin. Its composition is very complex, and differs not only in the species but in the individual, as shown by the reactions that follow blood transfusion. This specificity of the biochemical formula of our make-up is derived partly from our ancestors; i. e., it is inherited, and partly from our diet. Substances taken into the body are split into simpler substances. In this way the body prepares food for its use. Fresh substances, before being admitted into this chemical community, must pass tests, and, if rejected, the watchmen, the intestine and liver, destroy or expel the offenders. If they do not succeed in destroying offensive material, intoxication results. Now the question is, Does the fetus derive from the spermatozoa the father's chemical formula and the father's specific albumin? Dr. Udaeta answers this question in the affirmative. He states that cattlemen and horsemen are very careful about the first mating of pure breed cows and mares

with bulls and stallions of a similar breed. Mr. Dalmacio Garcia Izcara, director of the Madrid Veterinary School, has furnished Dr. Udaeta with some interesting cases. A pedigreed female dog was impregnated by a male dog of the same breed, and the result was a litter of very common puppies. The owner was astonished, but her surprise was still greater the next time, when her pet, after mating with a mongrel, had a litter of full blood puppies. The solution of this conundrum is the transfer of the albumin of the dog's former partner, through the fetus to the mother. The latter adapted the same biochemical formula. If we accept the view that the fetus acquires the father's characteristic albumin within the mother, and that fetal albumins are responsible for the intoxications of pregnancy, it will be clear that, by using the father's serum or blood as an antigen, the mother will form antibodies for the toxins that cause vomiting and in this way will get rid of the toxin.

This theory was the basis on which Dr. Udaeta applied his treatment for the toxemias of pregnancy. In all cases, since 1912, he has been using injections of normal horse serum, as he had difficulty in finding normal pregnancy serum. It occurred to him that human serum would be better than horse serum, and, in a case of hyperemesis gravidarum, he suggested an injection of the husband's serum. To his great surprise the wife stopped vomiting after the second injection. At the time, however, Udaeta failed to realize the importance of this fact, and he continued to use horse serum. Last December he visited a primipara, aged 27, who had already lost 7 kg. (15½ pounds) because of continuous vomiting, which began in the first month of pregnancy. Epinephrin, iodin, bromids and ovarian extract were tried and were useless. Udaeta then took from 70 to 75 c.c. of blood from the husband's arm, distributed it in several sterile test tubes, which he covered and kept in a cool place. Each tube held about 5 c.c. of serum, and each injection was limited to 3 c.c. The first injection caused a severe local reaction; the temperature rose to 38 C. (100.4 F.), and the patient was restless. In a few hours, however, all general symptoms had disappeared, as well as nausea and headache. Vomiting persisted, and there were still traces of albumin in the urine. A 5 c.c. injection was then given. By the next day, the temperature was normal and the local and general reactions were slight. After the third 5 c.c. injection, the vomiting and dizziness disappeared, and there was only an occasional slight headache. After the fourth injection the cure was complete. The author has treated four other cases with equal success.

Dr. Udaeta advises those who try his method to inject no serum, as the procedure is troublesome, but to inject the husband's whole blood mixed with 1 or 2 c.c. of 2 per cent. sodium citrate solution, to prevent clotting.

Shock

In the first session of the National Academy of Medicine, Dr. Isla, former surgeon of the Madrid General Hospital, read a paper on unusual cases of shock. When he began practicing in 1876, he had a patient, aged 54, who had no clinical symptoms, but who had succeeded in spending fourteen years in the hospital, through the efforts of influential friends. His only trouble was a deformity on the left side of the nose, caused by treating an anthrax lesion with a cautery. Dr. Isla suggested an autoplastic operation, and the patient accepted, but the next day, he was dead. The sister in charge told Dr. Isla that the man refused to eat and to speak that evening. Necropsy showed no cause of death, which Dr. Isla said was due to the patient's fear of losing his leisurely way of living. In another case a woman of middle age had a hydatid cyst of the liver. As she had refused operation, a puncture was made and the fluid was aspirated. The fluid had just begun to flow when the patient had cardiac syncope and died. A man, aged 28, and strong, was taken to the operating table for cranial trephining. Although he had been anesthetized with chloroform, he must have felt the knife, for syncope developed and he died. A traveling salesman, aged 30, of powerful build, who had a hydrocele asked a friend of Dr. Isla's to perform an injection of wine, after tapping. The puncture was hardly over when the patient dropped dead.

Dr. Isla recalled some classical cases also. Sophocles fell dead when fellow citizens offered him a laurel wreath. Diagoras, the atheist, expired suddenly when informed that his three sons had won the Olympian games. Dyonisius, the Syracuse tryrant, died suddenly on learning that he had been granted the poetry prize in Athens. Fouquet, Louis XIV's minister of finance, after being imprisoned in the fort of Pignerol for nineteen years, died when given his freedom. Leibnitz's niece was killed by joy on finding 600,000 francs in the philosopher's bed.

PARIS

(From Our Regular Correspondent)

Feb. 15, 1924.

The Proposed Order of Physicians

In a previous letter I referred to a bill introduced in the Chamber of Deputies, which aims to create an order of physicians similar to the order of attorneys (THE JOURNAL, July 7, 1923, p. 53). The idea appears good at first thought, and the bill has found many adherents among physicians. Some hold that the order would have these advantages: Unworthy members of the profession could be dropped, suspected members could be watched, evildoers could be excluded, and the medical profession, free of all taint, would become worthy of its mission and would inspire in the public the confidence that it deserves. The creation of an order of physicians, however, encounters great obstacles. A well known attorney, M. de Fallois, recently pointed out in a communication to the Syndicat médical of Paris that the analogy between physicians and lawyers is not close, and that there are actually the greatest differences. The need of a council on discipline for lawyers is readily understood. A large part of their life is absolutely public. They plead before courts, and, if they commit overt acts, the court can reprimand them or turn them over to a disciplinary body. Here the question is one of open and manifest acts. To be sure, there is a part of the attorney's life that is lived "behind the curtain"; there are consultations with clients, his personal relations, his conduct. The council of the order of attorneys can deal with any infraction of professional duty or courtesy in his public life. It may deal also with his conduct within his own sanctum, for his private office may be associated closely with his public life. There is no public life for the physician. Everything happens within his private rooms. As de Fallois says: "Whereas the obscure light of the lawyer's private office, is only the dawn of a day to be spent in the glare of public gaze, the shadows of the physician's office are the harbinger of eternal darkness in which secrets in the lives of his patients are to remain buried." From the disciplinary point of view, therefore, there is a great difference between the lawyer and the physician. The council of the order of advocates passes on acts that concern the public life of lawyers. It has outside information on which to base decisions, and does not necessarily enter his private office. It is different with physicians.

Suppose a council of the order of physicians were created; what would it do? If it had no further function than the council of the order of advocates, it would deal solely with professional misconduct. The council of the order of advocates is appealed to either by the prosecuting attorney or by the aggrieved party. How could the prosecuting attorney

appeal to a council of the order of physicians? If there is an infraction of law in practicing medicine, the prosecuting attorney appeals to the courts. If an *inconvenance professionnelle*, or what the English call an impropriety, has been committed, the prosecuting attorney could not be expected to denounce that which is not illegal. On the other hand, the prosecuting attorney can take account of infractions of professional courtesy in lawyers because he has the right of control and supervision.

Is the council of the order of physicians to be appealed to by the injured party? Here, the situation is entirely different as regards attorneys and physicians. The former have freedom of action; and, if they are neglectful, the courts cannot be appealed to for redress; otherwise, attorneys would be under the thumbs of magistrates, and would lose the independence necessary to their profession. Physicians, on the other hand, may be summoned before courts for grave errors in the exercise of their duties. The courts, as a rule, do not pretend to settle questions of diagnosis, prognosis and treatment, and they grant the greatest latitude to physicians to practice according to doctrines, theories, tendencies and systems. But when a physician commits an error, he incurs a responsibility before civil courts and is subject to penalty. A council of the order of physicians could not deprive the courts of their jurisdiction in such matters; consequently, the council would be useless.

As regards the "apaches," who disgrace medicine by dishonest practice and illegal operations, de Fallois thinks that a council would compromise the profession instead of upholding its honor. It would be powerless to suppress abuse which is only too real. The council of the order of attorneys is useful because its decisions have the weight of authority. It can suspend an attorney and prevent his practicing for a certain length of time. This is effective, for a suspended lawyer cannot plead before a court. With the physicians it is different. The council might prevent pharmacists from filling prescriptions of a suspended physician; but how could it prevent the practitioner from visiting or receiving patients? Thus. the decisions of the council of the order of physicians could not be enforced, and the council's inability to enforce discipline would discredit medicine as a profession.

The "University Group" of the League of Nations

Under the chairmanship of Prof. M. Lichtenberger, the so-called university group of the League of Nations recently held its constituent assembly for the region of Paris. M. Appell, president of the University of Paris, paid tribute to the memory of President Wilson, whose influence brought about the creation of the League of Nations. He said, through this act alone, the name of President Wilson had become immortal.

Physical Education and Sport

Dr. H. Diffre of Roubaix is the author of an interesting publication entitled, "Contrôle du sport et de l'éducation physique" (Masson et Cie, publishers). In distinguishing between physical education and sport, he says that sport should not be considered a means of physical development per se but a supplementary method of attaining a high degree of physical perfection. Sport puts on the finishing touches after systematic physical education has done its work. Sport gives a person a pleasant opportunity to use and retain physical strength and adroitness acquired by other means. It is proper to hold before those who undertake systematic physical education the prospect of distinguishing themselves in the field of sport, but they should never be taught that sport in itself can replace an adequate system of physical education.

In physical education as well as in sport, medical supervision should play an important part. Only a thorough medical examination will reveal a person's true physical condition. The complex biologic factors that constitute vitality cannot be reduced to formulas or figures. For a time, considerable weight was attached to the formula that chest girth should equal half the height; but when this rule was applied to recruits for the army, the results were disastrous. More than half of the draftees fell below the figures theoretically regarded as normal. It was therefore given up. The fact is, there are no absolute criteria that determine whether or not a person is adequately developed. That is why we must rely on those who, disregarding rules and averages, can judge physical fitness on the basis of a thorough examination. The only one qualified to do this is the physician. He can estimate correctly the physical value of a person and tell whether he is adapted to a given sport. He alone has the right to decide the kind of physical training a person needs.

The Journal de Médecine de Bordeaux

The *Journal de médecine de Bordeaux* has completed its first hundred years. The first number of the journal was published in 1824, when it was called the *Journal médical de la Gironde* and was edited by a society of physicians and pharmacists of Bordeaux. It is curious that among medical questions proposed at that time, some are of interest today: Is it permissible to inject drugs into the venous system in man? What drugs may be introduced in this manner? What diseases require this kind of medication?

Epidemics in the Schools

The minister of public instruction has issued an order that every child having a contagious disease must be removed from school, and that children who inhabit dwellings with persons suffering from contagious diseases may also be excluded.

Personal

At its last session, the Academy of Medicine chose as corresponding members Dr. Tixier, professor of clinical surgery at the Faculté de médecine of Lyons, and Dr. Mériel, professor of clinical surgery at the Faculté de médicine of Toulouse.

BERLIN

(From Our Regular Correspondent)

Feb. 16, 1924.

Berlin Physicians and the Health Insurance Societies

The health insurance societies appealed to the Chief Insurance Bureau against the decision of the Berlin Insurance Bureau, mentioned in my previous letter. The result was that the Chief Insurance Bureau, February 9, issued the following order: "The decision of the Insurance Bureau of Berlin, dated Feb. 1, 1924, is hereby reversed, and its execution is stayed." As regards the reasons given for the reversal, I will quote: "On examining the law applicable in this controversy, it has been established that the Berlin Agreement has never been in force under the jurisdiction of the Chief Insurance Bureau of Berlin. It might therefore be open to doubt whether the agreement became applicable to Berlin. The *Beschlusskammer*, to be sure, declared that the agreement has the force of law for Berlin, but it did not consider that a different situation was created when the League of Physicians canceled for an indefinite period the contracts that existed between the two parties. Both parties took the stand that all relations on the basis of old contracts were interrupted indefinitely. Under these circumstances, the *Beschlusskammer* regards it as inadmissible that, after the lapse of a considerable period, one party to the contract should be allowed to claim a restoration of former contract relations." The Chief Insurance Bureau now demands, since the medical treatment of members of health insurance societies is inade-

quate, that for every 1,350 members there must be at least one physician. If the insurance societies are unable within a specified time to meet this provision, the Chief Insurance Bureau will take the matter into its own hands and provide what is necessary. To meet this requirement, the executive committee of the new Berlin Society of Panel Physicians is endeavoring to secure physicians for its dispensaries. At present, the health insurance societies have, at the most, about fifty physicians.

Cancer Statistics

The city of Berlin has decided to reduce the number of necropsies performed in the municipal hospitals, for reasons of economy. The importance of necropsies may be estimated from a communication from Professor Lubarsch, presented at the last session of the Berliner medizinische Gesellschaft. These statistics were collected at the instance of his predecessor, Professor Orth, of the German Central Committee for Combating Cancer. Deaths from all causes in 1920 numbered 922,350, of which 52,000, or 5.6 per cent., were due to cancer and 5,000, or 0.6 per cent., to other malignant growths. Necropsy statistics, however, covering 39,000 cases, show just twice as many cases of cancer and other malignant tumors. The number of mistaken diagnoses that have been revealed by necropsies during 1920 and 1921 is especially large. In external cancer there were 8 per cent. of wrong diagnoses; in internal cancer, 32 per cent., and in internal sarcomas, 44 per cent. The statistics give interesting facts regarding the relative frequency with which various organs are affected with cancer. Whereas cancer of the digestive organs occurs twice as frequently in men as in women, the incidence for the liver, gallbladder and pancreas is reversed, being twice as common in women as in men. The reproductive organs are more frequently affected in women, the ratio being six to one.

The Seventieth Birthday of Stintzing

Professor Stintzing, director of the University Medical Clinic in Jena, celebrated his seventieth birthday, February 12. At the beginning of his career, he specialized in physiology and became an assistant to Pflüger. He then went to Munich, where, in 1880, he became an assistant to Ziemssen, and, in 1883, an instructor in the University of Munich. In 1890 he was called to Jena as professor extraordinarius in internal medicine, and two years later was appointed director of the medical clinic. Stintzing is doubtless best known by his "Handbook of Specific Therapy of Internal Diseases," which he first published in 1894-1896, in collaboration with Penzoldt. This work has passed through five editions. It has not preserved entirely its original form; the chapters on internal medicine have been abbreviated, and it has become a handbook of specific therapy in general. His clinical researches have been mainly in the field of neurology. The Stintzing electrode is well known. He has written treatises on "Elektrodiagnostische Grenzwerte" and "Der elektrophysikalische Leitungswiderstand des menschlichen Körpers und seine Bedeutung für die Elektrodiagnostik"; also on "Nervendehnung." He has numerous publications also in other fields of internal medicine.

Death of Felix von Luschan

Prof. Felix von Luschan, a doctor of medicine and philosophy, who held the chair of anthropology and ethnology in the University of Berlin, has died, aged 69. He devoted himself first to medicine and then to anthropology, studying under P. Broca in Paris. In 1878, he was military physician to the Austrian army of occupation sent to Bosnia, where he spent part of his time studying archeology. On returning to Vienna, he served two years in the General Hospital, and, in 1882, became an instructor in the University of Vienna. Three years later, he was called to Berlin, to be an assistant in the Museum of Anthropology. Under the direction of the gifted Adolf Bastian, his progress began. His work lay in the department of Africa and Oceanica; and in 1904 he became its director. He labored twenty-five years at this post, making the collections the most complete to be found anywhere. It was through his influence that the famous Benin collection of antiquities was secured for Berlin. After the British expedition of 1897, these rare bronzes appeared as trophies in Lagos and a little later in London. Von Luschan then hastened to buy them. The name of von Luschan will ever be associated with the Benin antiques, about which he wrote his last treatise. Von Luschan was placed in charge of the German excavations in northern Syria at Sendschirli, but he did not live to publish the results of this work. Von Luschan was frequently induced to devote himself to the study of the anthropology and ethnology of the German colonies, and in 1897 he published a series of contributions on the anthropology of the German protectorates. In discussions on fundamental problems of anthropology and prehistoric epochs, he repeatedly took an active part. His somewhat skeptical attitude toward the origin of the races of man he has incorporated in his outlines of anthropology, which bear the title "Rassen und Völker." The difficulties of anthropologic researches, the misunderstandings, and errors that arise not only among laymen but among anthropologists concerning the terms "race" and "people," are set forth clearly. A more comprehensive treatment of the same problems is found in his later work, published in 1922, "Völker, Rassen, Sprachen." According to Luschan, the existence of a "white" race cannot be scientifically demonstrated. The fact, however, that the Aryan, Semitic and Hamitic are the only languages that have a so-called grammatical gender justifies us in grouping into a complex the peoples speaking these languages, who were, at the same time, the founders and supporters of the three great civilizations: the Egyptian, the Babylonian and the European. Just previous to the World War, von Luschan had devoted himself mainly to the anthropologic conditions of the South Sea Islanders, and in order to get a deeper insight into this difficult problem he left, just before the outbreak of war, for Australia and Polynesia, on which journey he was accompanied by his wife. For many years he had been an instructor at the University of Berlin, but in 1911 he became the first occupant of the chair of anthropology and ethnology, which position he held until two years ago, when he was retired for age.

Marriages

CHARLES E. STONE to Miss Ruth Higgins, both of Vincennes, Ind., at Louisville, Ky., Dec. 31, 1923.

FRANCIS JOSEPH STEJSKAL to Miss Helen Krejci, both of Crete, Neb., January 24, at Tabor, S. D.

BEDFORD A. KIRKPATRICK to Miss Marjorie Thomson, both of Thrall, Texas, at Taylor, March 2.

ELLIOTT C. PRENTISS to Miss Ethel I. Owbridge, both of Santa Monica, Calif., Dec. 30, 1923.

LISBON C. ALLEN, Hoschton, Ga., to Miss Isabelle Canning of Flowery Branch, Dec. 27, 1923.

LAWRENCE HOWARD ROBLEE to Miss Beatrice Angela, both of Chicago, February 16.

WILLIAM A. MALCOLM, Chicago, to Miss Ruth Ehrlicher of Pekin, Ill., February 28.

WILLIAM P. ROGERS to Miss Lula B. Adams, both of El Paso, Texas, recently.

WILLIAM A. TOLAND to Miss Grace B. Terrill, both of Boston, Texas, recently.

Deaths

William Paterson Cornell ✠ Columbia, S. C.; Medical College of the State of South Carolina, Charleston, 1898; formerly lecturer on physical diagnosis and medical jurisprudence, and for fifteen years professor of pediatrics at his alma mater; member of the state board of health; associate editor of the *Journal of the South Carolina Medical Association;* aged 45; died suddenly, February 25, at New Brookland, of angina pectoris.

Frederick Nolton Bigelow ✠ Providence, R. I.; University of Michigan Medical School, Ann Arbor, 1907; member of the American Academy of Ophthalmology and Oto-Laryngology, the American Laryngological, Rhinological and Otological Society, the New England Otological and Laryngological Society and the Rhode Island Ophthalmological and Otological Society; aged 38; died, February 14, following an operation for gastric ulcer.

Alfred Lucius Fowler, Atlanta, Ga.; Atlanta College of Physicians and Surgeons, 1899; member of the Medical Association of Georgia; and the American Urological Association; formerly professor of genito-urinary diseases at the Emory University School of Medicine, Atlanta; physician to the federal penitentiary and on the staff of the Grady Hospital; aged 51; died, February 25, of heart disease.

Jonathan P. Worrell ✠ Terre Haute, Ind.; University of Pennsylvania School of Medicine, Philadelphia, 1867; member of the American Ophthalmological Society, the Chicago Ophthalmological Society, and the Indiana Academy of Ophthalmology and Oto-Laryngology; on the staff of St. Anthony's Hospital; aged 79; died, February 22, of senility.

Carl Herbert Weisman, Spokane, Wash.; University of Michigan Medical School, Ann Arbor, 1904; member of the Washington State Medical Association; past president of the Spokane County Medical Society; on the staffs of the Deaconess Hospital and St. Luke's Hospital, where he died, February 25, of pernicious anemia, aged 44.

Franklin Charles Gram, Buffalo; Niagara University Medical Department, Buffalo, 1891; member of the Medical Society of the State of New York; for thirty years secretary of the Erie County Medical Society and registrar of vital statistics for the city board of health; aged 62; died, February 3.

William Addison Stone ✠ Kalamazoo, Mich.; University of Michigan Medical School, Ann Arbor, 1885; member of the Detroit Society of Neurology and Psychiatry, and the American Psychiatric Association; on the staff of the Michigan State Hospital; aged 61; died, February 24, of heart disease.

George Lohman Romine, Lambertville, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1880; member of the Medical Society of New Jersey; past president of the Hunterdon County Medical Society; aged 71; died, February 7, at the University Hospital, Philadelphia, of senility.

George Hohmann ✠ New York; Fordham University School of Medicine, New York, 1915; member of the Society of American Bacteriologists; on the staffs of the Fordham, Knickerbocker and the Columbus hospitals; aged 36; died, February 24, of pneumonia.

Walter William A. Kresensky, Greeley, Iowa; State University of Iowa College of Medicine, Iowa City, 1910; served in the M. C., U. S. Army, during the World War; aged 35; died, February 17, of a self-inflicted bullet wound, while suffering from ill health.

Rowan Barclay Pryor, Crestwood, Ky.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1897; member of the Kentucky State Medical Association; aged 49; died, February 22, following a long illness.

Dennis Ellmore Biggs, Bellingham, Wash.; Miami Medical College, Cincinnati, 1887; Bellevue Hospital Medical College, New York, 1892; formerly member of the Washington state legislature; aged 63; died, February 24, of cerebral hemorrhage.

James Edward Allgood, Liberty, S. C.; Atlanta (Ga.) College of Physicians and Surgeons, 1902; member of the South Carolina Medical Association; aged 43; died, January 29, of peritonitis, following an operation for strangulated hernia.

John E. Dutcher, Helena, Mont.; John A. Creighton Medical College, Omaha, 1917; served in the M. C., U. S. Navy, during the World War; connected with the U. S. Veterans' Bureau; aged 28; died, February 19, of typhoid fever.

Patrick Cassidy, Norwich, Conn.; University of Vermont College of Medicine, Burlington, 1865; member of the Connecticut State Medical Society; on the staff of the Backus Hospital; aged 85; died, February 25, of senility.

John George Doron, Camden, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1887; past president of the Camden County Medical Society; aged 63; died suddenly, February 18, of cerebral hemorrhage.

Samuel Lawrence Stallard, Greenwood, N. Y.; Kentucky School of Medicine, Louisville, 1907; served in the M. C., U. S. Army, during the World War; aged 38; died, February 8, of injuries received in an automobile accident.

Carl Ludwig Mueller ✠ Wapakoneta, Ohio; University of Marburg, Germany, 1888; Spanish-American War veteran; city and county health commissioner; aged 61; died, February 9, of cerebral hemorrhage and heart disease.

George Benjamin Williams, Flat River, Mo.; Beaumont Hospital Medical College, St. Louis, 1893; member of the Missouri State Medical Association; aged 59; died, February 10, of pneumonia, following an operation.

Enoch Hollingshead, Pemberton, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1867; member and at one time president of the Medical Society of New Jersey; aged 80; died, February 23, of senility.

John M. Jacobs, Lansdale, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1861; Civil War veteran; formerly president of the Doylestown National Bank; aged 85; died, January 30, of heart disease.

Josephine P. Wheeler Hildrup ✠ Brookline, Mass.; Woman's Medical College of Pennsylvania, Philadelphia, 1901; member of the Medical Society of the State of Pennsylvania; aged 58; died, February 19.

Justinian Alman Hofheimer ✠ New York; Bellevue Hospital Medical College, New York, 1885; on the staffs of St. Elizabeth's and Harlem hospitals; aged 62; died, February 23, of nephritis and heart disease.

Louis Lippmann Cohen ✠ Brooklyn; Long Island College Hospital, Brooklyn, 1898; on the staffs of the Bushwick, Williamsburgh and United Israel-Zion hospitals; aged 48; died, February 27, of pneumonia.

Samuel James Gruver, Brockton, Mass.; University of Pennsylvania School of Medicine, Philadelphia, 1869; member of the Massachusetts Medical Society; aged 74; died, February 20, of heart disease.

Carol Brock Tittle, New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1923; aged 28; intern at the Charity Hospital, where he died, February 28, of streptococcus septicemia.

Herman Conrad Bleyle, Newark, N. J.; Bellevue Hospital Medical College, New York, 1863; member of the Medical Society of New Jersey; Civil War veteran; aged 78; died, February 11, of senility.

John T. Thatcher, Oregon, Mo.; Detroit (Mich.) Homeopathic Medical College, 1874; member of the Missouri State Medical Association; county health physician; aged 73; died, February 11, of senility.

Allen Chancellor Eakin, Rockford, Ill.; Northwestern University Medical School, Chicago, 1894; on the staff of St. Anthony's Hospital, where he died, February 26, of cerebral hemorrhage, aged 56.

George Strickland, Claremore, Okla.; Kentucky School of Medicine, Louisville, 1883; member of the Oklahoma State Medical Association; member of the city council; aged 65; died, January 7.

A. M. Lee, Clinton, N. C.; Medical College of Virginia, Richmond, 1862; practitioner in Clinton for sixty-two years; aged 84; died, February 11, at St. Luke's Hospital, Richmond, Va., of senility.

Percy Clark Joy ✠ Atlantic City, N. J.; Jefferson Medical College of Philadelphia, 1915; served in the M. C., U. S. Army, during the World War; aged 33; died, February 28, of pneumonia.

Jerry Chadwick Hammond, Omaha; John A. Creighton Medical College, Omaha, 1896; member of the Nebraska State Medical Association; aged 62; died, February 16, of heart disease.

Harry Adams Hughes, Jr., Buckeye, Ariz.; University of Louisville (Ky.) Medical Department, 1916; aged 32; died, February 15, at the Arizona Deaconess Hospital, Phoenix, of uremia.

William A. Rothwell ✠ Kendrick, Idaho; Denver and Gross Medical College, Denver, 1890; aged 55; died, February 20, at the Deaconess Hospital, Spokane, of carcinoma of the pancreas.

James Goodwin Thompson, Oakland, Calif.; University of California Medical School, San Francisco, 1894; member of the California Medical Association; aged 58; died, February 17.

Michael Augustine Morris ✠ Boston; Medical School of Harvard University, Boston, 1873; on the staff of the Whidden Memorial Hospital, Everett, Mass.; aged 66; died, February 17.

Henry Alexander Bernstein ✠ New York; Bellevue Hospital Medical College, New York, 1895; on the staff of the Beth David Hospital; aged 59; died, March 1, of pneumonia.

Landon Anderson Yarbrough ✠ Covington, Tenn.; Memphis Hospital Medical College, 1889; past president of the Tennessee State Medical Association; aged 56; died, February 23.

Daniel Minard Leftwich, Winfield, Texas (licensed, Texas, act of 1907); member of the State Medical Association of Texas; aged 45; died, February 23, following a long illness.

Mary Augusta Requa, New York; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1893; aged 73; died recently, of bronchopneumonia.

Belle Augusta Schisler ✠ Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1901; formerly on the staff of the Woman's Hospital; aged 49; died, February 27.

John Reed Spencer, Cincinnati; Eclectic Medical Institute, Cincinnati, 1881; emeritus professor of obstetrics at his alma mater; aged 69; died, February 24, of pneumonia.

Daniel Witter Higgins ✠ Washington, D. C.; George Washington University Medical School, Washington, 1908; aged 47; died, February 23, of septicemia and heart disease.

William George Russell, Lake Placid Club, N. Y.; Medical Department of the University of the City of New York, 1891; aged 61; died, February 20, of heart disease.

William Leiser, Jr. ✠ Lewisburg, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1875; aged 69; died suddenly, February 27, of heart disease.

James Allen Kirk, Carrick, Pa.; Columbus (Ohio) Medical College, 1883; formerly member of the city council and the school board; aged 63; died, February 23.

Erich Benno Ruthenberg, Chicago; Rush Medical College, Chicago, 1890; on the staff of the Passavant Hospital; aged 53; died, March 10, of angina pectoris.

Charles E. Rosenow, Oakley, Mich.; Michigan College of Medicine and Surgery, Detroit, 1896; aged 63; died, February 20, at the Memorial Hospital, Owosso.

William Wallace Saulter, West Ottawa, Ont., Canada; Trinity Medical College, Toronto, 1891; coroner of Carlton County; aged 55; died, Dec. 14, 1923.

William Wallace Cunningham ✠ Beaumont, Texas; Medical College of Ohio, Cincinnati, 1884; aged 66; died, February 5, of cerebral hemorrhage.

Ralph Norvel Knowles ✠ Bangor, Me.; University of Maryland School of Medicine, Baltimore, 1909; aged 40; died, February 21, of septicemia.

L. Hugh Gilliam, Flintville, Tenn.; Vanderbilt University Medical Department, Nashville, 1894; aged 54; died, February 14, of pneumonia.

John Anderson Adkisson, San Antonio, Texas; University of Tennessee College of Medicine, Memphis, 1900; aged 46; died, January 17.

John J. Clingman, Huntsville, N. C.; College of Physicians and Surgeons, Baltimore, 1877; aged 70; died, February 8, of pneumonia.

Lida Taylor Allen-de Luca, Collingswood, N. J.; Woman's Medical College of Baltimore, Md., 1906; aged 49; died, February 23.

Gustav Kompert, New York; Medical Department of the University of the City of New York, 1895; aged 60; died, March 2.

Freeman Lamphrey Lowell ✠ Boston; Medical School of Harvard University, Boston, 1900; aged 52; died, February 21.

Addison Michael, Noblesville, Ind. (licensed, Indiana, 1903); aged 64; died, February 20, of cerebral hemorrhage.

Ladislav Knop, Chicago; Bohemian University of Prague, Austria, 1898; aged 50; died, March 1, of heart disease.

Albert L. Trout ✠ Walsenburg, Colo.; Missouri Medical College, St. Louis, 1889; aged 62; died recently.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

"VITA-PEP"

Another Wet Spot in the National Desert

Why buy wine of a bootlegger when you can purchase "Vita-Pep" at $9 a case or six cases for $45? "Vita-Pep" is nominally put on the market by the Vitamine Products Co. of New York City but actually seems to be put out by the Vitamin Food Company, Inc., of Westfield, Mass.—the "Pure Food Town." The president of the Vitamin Food Company and the man whose name appears most prominently in all of the advertising is one Eugene Christian, who calls himself a "Food Specialist."

Before discussing "Vita-Pep" specifically, it seems fitting to give readers of THE JOURNAL a brief sketch of some of the previous activities of Eugene Christian. Some years ago Christian seems to have been a salesman. Later he was in the hotel business but this venture, apparently, was not successful. Still later, he seems to have gone into the manufacture of fad foods and developed what was known as "The Christian Natural Food Company." Apparently both the hotel scheme and the food company went into bankruptcy.

About eleven years ago Christian was running a mail-order "school" that he called the "Eugene Christian School of Applied Food Chemistry." Those who answered the advertisements first received a letter offering the "course" for $100 and emphasizing the fact that persons completing it would be given a "diploma" which would confer on them "the degree of F.S.D. (Doctor of Food Science)." This degree, continued the letter, gave "the right to practice the Science of Curative Feeding." Apparently Christian conferred the degree "F.S.D." on himself as he tacks these letters to his name. Enclosed with the letter was a piece of advertising featuring one of Christian's fad foods, "Vieno Bran."

In the second letter of the follow-up series the price was reduced to $45 and Christian pointed out that neither a knowledge of chemistry nor a college education was necessary to master the "course": "It requires only common sense." The third and last letter of the follow-up offered a "complete course (24 lessons) of study in scientific eating" all for $10. This, according to the letter, would qualify the purchaser "to diagnose all stomach and intestinal trouble, and to prescribe a curative, remedial or normal diet therefor."

THE "COURSE IN SCIENTIFIC EATING"

In 1914 Christian, under the trade name "Christian Dietetic Society and School of Scientific Eating" was selling a "Course in Scientific Eating." The price asked was $10. In 1915, the price of the "course" had come down to $5. In the latter part of 1915 Christian and two others incorporated "The Corrective Eating Society" under which Christian's course was again advertised, this time for $3.

This "Course in Scientific Eating" purported to give persons with no fundamental knowledge of the human body or its processes alleged instruction in the treatment and cure of disease by a so-called dietetic "system"—a system devised by an individual who, scientifically, was as ignorant as those he would teach. The "course" consisted of twenty-four "lessons." They contained the usual number of platitudes regarding diet, obvious banalities that were as uninformative to intelligent persons as the statement that twice two makes four. The alleged physiological and chemical facts that were given were hopelessly untrustworthy and incorrect. The complete "course" contained less real information on the subject of elementary dietetics than would be found in the average common school textbook on hygiene and physiology. Some of these "lessons" discussed the cure of gastric catarrh and gastric ulcer. Some purported to tell how to cure "intestinal congestion (constipation)." Still other "lessons"

dealt, respectively, with appendicitis and nervousness, while the last lesson in the "course" was on "Diagnosis Simplified and Made Practical."

The "course" was devoted to no small extent to the self-glorification of Christian as an alleged food scientist and to the advertising of some of Christian's fad food stuffs. As an example of a few of the grosser inaccuracies with which the "course" teemed, we quote:

"Auto-intoxication is so called because the deomposing foods generate alcohol . . ."

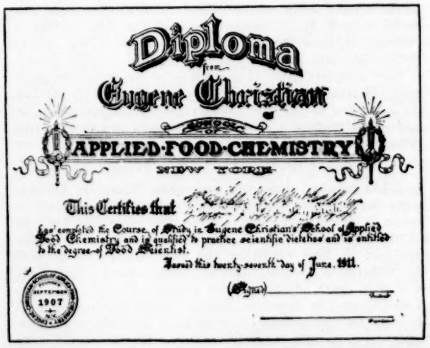
". . . calcium phosphate, the principal element of starch. . . ."

"All rheumatic conditions, such as gout, lumbago and sciatica, are caused largely by over-consumption of starchy foods."

"In northern countries such articles as grapefruit, lemons, limes, pineapples, apricots and all highly acidulous fruits should be avoided save, perhaps, in exceedingly warm weather. Taken at other times . . . this results in crystallization of the starch atom, and produces the blood crystal; this in its turn, produces rheumatism, gout, lumbago, knotted hands and feet, arteriosclerosis, stiff joints and premature old age."

Those who purchased this "course" were later badgered with letters urging them to buy "Eugene Christian's New Five Volume Encyclopedia of Diet," which was described as "the crowning achievement of the world's greatest food scientist." They were told further that "nowhere else in all the world" could the information contained in this "Encyclopedia" be had, for "no other living man could have written such a book, for no other man has devoted his life to working out and making practical this great world science—the Chemistry of Food and its Relation to the Human Body." It is hardly necessary to tell physicians that each of these statements was a specific and definite falsehood.

Nor was this all. Purchasers, still later, received a letter from Eugene Christian himself, suggesting that if the recipients were "afflicted with any digestive, assimilative or eliminative disorders" they should, by all means, fill in the

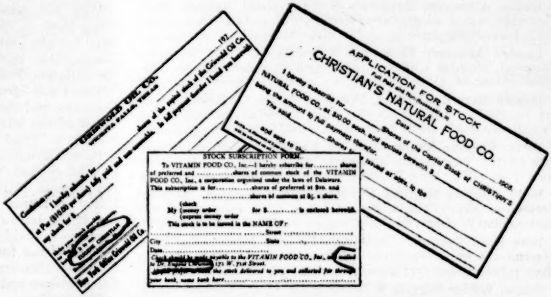


Photographic reproduction (greatly reduced) of the "diploma" issued by Eugene Christian to those who took his mail-order "course" in the "School of Applied Food Chemistry."

diagnosis blank (enclosed) and send back to Christian with $45 for a mail-order diagnosis and treatment. Later still, they received another letter, this time from the "Society" stating that Eugene Christian would personally lay out a "series of menus" for the particular needs of the persons written to, all of which would be sent free of charge, providing the "Encyclopedia of Diet" was purchased within three weeks.

Dr. Harvey W. Wiley called attention to Christian's monumental ignorance in an article published in *Good Housekeeping*, May, 1917. The article dealt in detail with Christian's "Course in Scientific Eating" which at that time was being sold under the modified title "Little Lessons in Scientific Eating."

Dr. Wiley said: "When one examines his [Christian's] dicta in the light of real science, the wonder grows beyond expression that it is possible for any one to make so many inaccurate and misleading statements in so small a space. . . . The charitable view is to ascribe all Christian's crudities and monstrosities of statement to ignorance or lack of opportunity for scientific study."



Photographic reproductions (reduced) of application blanks sent out by Christian to those on his "sucker list" in an effort to get them to sign on the dotted line for stock in oil wells and fad foods.

AN OBESITY CURE AND OIL STOCK

Before leaving the "Corrective Eating Society" it is worth noting that during the past year or two this concern has been commercializing the fad for a svelte figure and has advertised an "Amazing New Discovery" that would permit obese women to reduce to the ideal figure in two weeks. It was all to be done by the "Vaco Reducing Cup" which was said to remove fat as one uses "an eraser to remove a pencil mark." Of course "Science has produced this new invention and it removes the fat from the very places you want it removed." It was only necessary to use the device "Three minutes night and morning" to bring about whatever reduction in weight was desired.

In the early part of 1921 those who were on Christian's "sucker list" received a circular letter addressed to his "patients and readers." This letter was to the effect that Christian had cured a diabetic Texan, who was interested in the oil business. The Texas gentleman in gratitude came to New York and told Eugene Christian that he had "50 acres of ground in the center of the richest oil field in the world" and he wanted Christian to get in with him on the ground floor. The letter then stated that Christian had put "every available dollar" he had "into the enterprise." All of this led up to the suggestion that the recipients of this printed letter should join Christian. He wanted one thousand of the many to whom he was sending this letter to send him $100 each for the purchase of ten shares apiece. More than ten shares could be had if desired. The check was to be made payable to the oil company but sent to Christian.

VITAMIN FOOD COMPANY

Then came the Vitamin Food Company, Inc., with Eugene Christian as president. Again those whose names were on the "sucker list" received a piece of typical promotion material from Eugene Christian. They were told that Christian, with some friends, had organized the Vitamin Food Co., Inc., and had decided to offer to those who had purchased his "books on foods and nutrition" the opportunity to invest in the concern. After giving the usual glowing description of what was to be expected from the Vitamin Food Co., Inc., and pointing out that the market and potential profits for the company were almost unlimited, the recipient was given the opportunity of signing on the dotted line of the "stock subscription form." The checks were to be made payable to the

Vitamin Food Co., Inc., but mailed to Eugene Christian. In the earlier advertising the product mainly stressed was "Vegex" which, according to the advertising matter, was a name that the Vitamin Food Co. had given to a British preparation sold across the water under the name of "Marmite." In addition to "Vegex," which was said to be particularly rich in Vitamin "B," there were also such subsidiary products as "Vegex Cubes," "Vegex Milk," "Vegex Vitamin Flavoring Sauce," "Vegex Almonds" and "Vitafood Wafers."

VITA-PEP

Now comes the crowning achievement of the Vitamin Food Co.—Vita-Pep. Prospective purchasers are sent a lurid saffron-colored circular reproducing, natural size, a one pint bottle of "Vita-Pep" and reproducing three times greater than natural size the statement on the label that it contains ALCOHOL, 16 PER CENT. The prospective purchaser is urged to send in $9 for a case or $5 for a half case or $1 for a single bottle. A form letter, which accompanies the circular, bears the letter-head not of the Vitamin Food Co. of Westfield, Mass., but the Vitamine Products Company, 1819 Broadway, New York City. When, however, you send a check to the Vitamine Products Company for a supply of Vita-Pep to replenish your private stock, it comes back through your bank endorsed "Vitamine Products Company, For Deposit to Account of Vitamin Food Co., Inc. Moreover, the case in which your Vita-Pep comes bears a sticker of the "Vitamin Food Co., Inc., Westfield, Mass.," and another sticker bearing the same name and address but with the words "Foods Co., Inc." partly blocked out with a rubber stamp and the words "Products Co." appended. Also, your bottle of Vita-Pep is mailed from Westfield, Mass.

According to the label, which, presumably, tells the truth or it would violate the federal Food and Drugs Act, Vita-Pep, in addition to containing wine, with an alcohol strength of 16 per cent., also contains pepsin, rennin and a concentrate of Vitamin "B." The advertising circular states that Vita-Pep is a "Zestful New Health Tonic" which "Restores Youthful Vitality." The letter sent to prospective customers states that when one takes a half-wineglassful of Vita-Pep with a half-wineglassful of freshly pressed orange or lemon juice,

Amazing Discovery!
Science Shows us A New and Better Way of Living
Learn the truth—Find out what has been proven about Vitamins in the last two years in the laboratories of the great Universities in the practical field of science.
Vegex—
Be delicious and richest of vitamin foods
(A FOOD—The builder of nerve and gland power)
Other Certified Vitamin Foods

Greatly reduced photographic reproduction of one-half of a full page newspaper advertisement typical of that used in the earlier exploitation of the Vitamin Food Company. Such advertising costs money; the gullible public pays for it.

he will get "an ample quantity" of both Vitamin "B" and Vitamin "C." This sounds reasonable. The letter does not add, although it might, that he will also get a "kick" almost equal to that to be had from "two fingers" of straight whisky. Quoting still further from the letter:

"Vita-Pep is pleasant to the taste and delightful in its effect — takes away that tired, rundown feeling and makes one feel vigorous, healthy and strong."

Could any more be said for half a glass of sherry? It is fair to assume that a half-wineglassful of Vita-Pep (alcohol, 16 per cent.) would decidedly modify the outlook on life of one who was not used to alcoholic beverages.

After placing the first order for Vita-Pep the customer is bombarded with additional letters enclosing some of the advertising of the Vitamin Food Co., Inc., Westfeld, Mass., and urging him to place an order for Vita-Pep in dozen or

Photographic reproduction (greatly reduced) of a circular advertising "Vita-Pep." It is worth noting that the alcohol declaration on the label of a bottle of "Vita-Pep" is in 6 point, thin line, capital letters. The same legend in the circular here reproduced is, in the original, in 18 point, black-face capital letters. One is justified in inferring that the aim of such advertising is to stress the alcohol content.

half dozen lots. "Vita-Pep keeps indefinitely" and by buying the stuff by the case it will "enable you at all times to keep a supply of Vita-Pep on hand." The purchaser is also urged to let his friends know about Vita-Pep. He is urged to send in $45 and the address of five people to each of whom a case of Vita-Pep (12 pints) will be delivered and the person who sends in the money will receive one case free. Should you not wish to part with $45, but are still willing to send in the names of some friends, the concern will send you, for fifteen names "a dollar box of Vegex Almonds."

The Vitamin Products Company also sends in some testimonials. For instance, a "prominent banker" from the State of Washington, sent in a check for $12.65 for a supply as, according to his letter, each member of his family is a user of Vita-Pep. A "well-known Pennsylvania oil man" says that he thinks Vita-Pep is "certainly worth while" and he sends in a check for another case because he feels the "need of the boost which this palatable helpmate is capable of furnishing." Another testimonial giver says that he "lives much more easily with it than without it."

In closing, THE JOURNAL has just one question to ask and that question is directed to the United States Internal Revenue Department: What is going to be done about it?

Mortality of Tuberculosis in 1923.—For tuberculosis (all forms), the 1923 death rate was 96.4 per hundred thousand population, as against 102.9 in 1922, and 104.5 (for forty-three cities, approximately 23,500,000 population) in 1921. For pneumonia (all forms) the 1923 rate was 154.5, as against 126.2 in 1922, and 106.7 (forty-three cities, approximately 23,500,000 population) in 1921.—*Pub. Health Rep.* **39**:150 (Jan. 25) 1924.

Correspondence

THE FORMATION OF BILE—PIGMENTS—THE RETICULO-ENDOTHELIAL SYSTEM

To the Editor:—The first editorial in THE JOURNAL, Dec. 22, 1923, has much in it that seems to me unfortunate, as physicians reading this editorial I believe would come to the conclusion that recent work by Rich has changed the current conception about the formation of bile pigments. Rich's experiments attempt to controvert findings by Hooper and Whipple; and, although the editorial does not mention these authors, it is obvious that certain of the statements in the article refer to the work of Hooper and Whipple. I feel that the editorial writer did not examine the experiments of Rich, or he perhaps would have come to the conclusion that they were inconclusive, that his animals lived an insufficient length of time, and that the operative procedure caused such shock that the experiments were not a fair test of the hypothesis. Moreover, the reviewer did not give a fair summary of recent work. Assuming that Rich's experiments were directed toward an attempt to disprove the experiments of Hooper and Whipple, these experiments should have been mentioned; but this is a minor point. It would have been well, however, for the reviewer to indicate that Rich was the only person in a considerable number of recent investigators who had the courage to deny the rapid transformation of hemoglobin to bile pigment outside the liver. Reference might well have been made to the excellent review by MacNee in the *Quarterly Journal of Medicine* (**16**:390 [July] 1923). His work is opposed to the conclusions of Rich. The reviewer should have mentioned Hymans van den Bergh (*Presse médicale* **29**:441 [June 4] 1921). His work, again, is wholly opposed to the conclusions of Rich. Moreover, recent publications by B. B. and C. M. Jones (*Archives of Internal Medicine* **29**:699 [May] 1922), show that, in man, in the vessels of the arm, isolated by a tourniquet, hemoglobin is promptly changed to bile pigment.

Finally, information, probably not known to the reviewer, was presented before the American Physiological Society in St. Louis at the Christmas meetings, which proved beyond all peradventure that the conclusions reached by Hooper and Whipple were correct. Mann and Magath of the Mayo Clinic have removed the livers completely in more than fifty dogs, and by elaborate technic have been able to keep these animals alive in many instances for from eighteen to twenty-four hours, and in every animal that lived over six hours they observed the production of bile pigments in the blood stream and its appearance in the urine and tissues, though these animals had been long periods without any liver tissue whatsoever. These experiments will be presented in an abstract in the proceedings of the societies appearing in the March issue of the *American Journal of Physiology*. Dr. Mann tells me that the details will be published early this spring in the *American Journal of Physiology*. Perhaps at that time the editorial writer will care to correct the misapprehension which surely has been left in the mind of the general reader. Much as we all value new work, when it runs contrary to work of similar nature done with equal care I believe that it should be treated editorially with a presentation of both sides in a judicial and fair spirit.

Further, I wish to comment on the recent editorial on the Reticulo-Endothelial system (THE JOURNAL, February 23). The editorial is of great interest, and as a whole it seems to me admirably presented; but there are certain statements which I think are unfortunate and might leave in the minds of the casual reader an erroneous impression. I refer particularly to the paragraph on page 634, beginning "More regularly these cells occupy themselves . . ." The statement that in man about one-thirtieth of the total blood is destroyed each day is certainly open to argument and should not be stated in such dogmatic fashion, as the experiments of Ashby indicate that the life cycle may be consideraly longer than this. Again, the statements that pigments are largely taken from the blood by the marrow and reutilized in hematopoiesis is certainly debatable, to say the least. Further, the footnote that MacNee has shown that Kupffer cells and not the liver parenchyma manufacture bile pigment I believe would cause Professor MacNee considerable mental anguish, as I have read his reviews with considerable care, and I believe that his recent statement (*Quarterly Journal of Medicine* **16**:390 [July] 1923) could hardly be interpreted in any such fashion. This paragraph compares unfavorably with the first portion of the presentation, which seems to me admirable.

GEORGE H. WHIPPLE, M.D., Rochester, N. Y.

NARCOTIC DRUG ADDICTION

To the Editor:—Many of the statements made by Drs. Sceleth and Kuh in their article in THE JOURNAL, March 1, are at variance with my own observations in drug cases. The assertion is made that "in all instances the narcotic was withdrawn in less than two weeks' time. . . . There were no acute withdrawal symptoms, drug psychoses, or serious asthenic symptoms. . . . These patients were no more trouble than any other patients when they actually knew that nothing they could do would produce another dose of morphin." Compared with my own experience, these results are extraordinary. During the last ten years, as part of my psychiatric work, approximately fifteen hundred such cases have come under my personal observation or treatment. These patients were handled chiefly in the psychopathic and medical departments of St. Francis and the Western Pennsylvania hospitals. They came from every walk in life. As to the short withdrawal period: In my much smaller series (1,500 cases, against 5,000 in the article quoted) there were a number of patients, probably 5 per cent. or more, for whom withdrawal in two weeks would have certainly proved deleterious, mentally or physically, if not fatal. Among these were cases of extreme exhaustion, heart disease, hyperthyroidism, infirmity of age, neuralgias, neuroses, asthma, tabetic crises and gallbladder colic. While in certain of these it would have been possible to withdraw the drug in two weeks, the strain on the crippled physical organism would have seriously handicapped the patients' chances for health and rehabilitation. We regard each drug case as a medical problem, with always a more or less complicated mental pathologic condition.

The authors do not state the duration of the habit, age of the addict, or complicating disease factors, or specify where treated, or methods employed. But the series of 5,000 were evidently most carefully selected, since there were "no acute withdrawal or serious asthenic symptoms."

Drug addicts have constituted but a small fraction of my psychiatric work. Yet, contrary to the experiences of Drs. Sceleth and Kuh, they have, as a whole, been more trouble to me and to the hospital management than any other patients. They have, as a rule, been trouble makers, regardless of the fact that the most approved, and various methods of withdrawal have been employed, and whether or not they knew that "nothing they could do or say would produce another dose of morphin." It seems to me that drug addicts will necessarily in many cases be difficult patients, not only because of the original psychopathic make-up of the individual, but because of the psychophysicochemical pathologic changes set up in the organism through long use of the drug,

which latter pathologic changes are responsible for the manifold and distressing withdrawal symptoms always present in some degree in my series, except in general paralysis, or at times in mania.

My experience leads me to think that it is hardly fair to make the generalization that "addicts cannot be trusted." Such an attitude of mistrust on the part of those dealing with drug habitués is justly resented by that minority who have innocently become addicted. For such individuals this stigma applies only to matters regarding the procuring of the drug. Generally speaking, addiction to narcotic drugs, especially morphin, enhances weak or vicious qualities *already existent in the individual.* Inherent sturdy character attributes are not readily broken down by morphin, though they yield more easily to cocain or heroin.

I cannot agree that "all addicts get comfort and pleasure from narcotic drugs in addition to the anodyne effect." This statement is at least misleading. It applies in the stage of addiction formation, and possibly in a few cases later; but after the habit is fully established, the determining incentive is to obtain something like a normal sense of well-being.

The physician who has attempted to understand the psychology of this difficult class of patients finds himself, in reading this article, disappointed because the authors have not fortified their excellent generalizations by giving sufficiently specific reasons or data on which they warrant their conclusions.

C. C. WHOLEY, M.D., Pittsburgh.

LIVING SUTURES FOR HERNIOTOMY

To the Editor:—In THE JOURNAL, February 23, appears an article by Dr. Frank Adair on living sutures for inguinal herniotomy. These "rediscoveries" are causing a useless increase in the volume of medical literature. Dr. L. L. McArthur of Chicago has for years made use of the aponeurosis of the external oblique muscle in the repair of hernia. His technic is amply illustrated in Volume 2 of Operative Surgery by Joseph D. Bryant, published in 1906.

J. H. SHEPHARD, M.D., San Jose, Calif.

[The letter of Dr. Shephard was referred to Dr. Adair, whose reply follows:]

To the Editor:—The short article of mine on the Use of Living Sutures for Herniotomy (THE JOURNAL, February 23) was meant in no way to be a discovery. In fact, part of the bibliography on the subject was referred to in my article. Recently the entire subject of living sutures has received a tremendous impetus, owing to its successful employment by Gallie in very difficult herniotomies. Dr. McArthur has an ingenious method of utilizing his strips of aponeurosis; and his operation is a splendid contribution to the subject of hernia. His technic, however, differs from mine in many ways.

FRANK E. ADAIR, M.D., New York.

"HERMAN RUBIN AND CITROPHAN"

To the Editor:—After reading your splendid article exposing the alleged claims for the fat-reducing proprietary "Citrophan" (THE JOURNAL, March 1, p. 734), there are a few additional comments I should like to make, as the name of the Beth David Hospital has been used by Dr. Herman H. Rubin in his advertising literature.

The statement to the effect that Dr. Rubin is or was the "chief medical clinician" to the Beth David Hospital is, of course, absolutely untrue. The records of the institution show that the only connection which Dr. Rubin has ever had with the Beth David Hospital was during the latter part of 1920, at which time he held a very minor part as one of the assistants in the first medical clinic of the dispensary. The records further show that Dr. Rubin was asked to resign by the Dispensary Committee for two reasons: (1) conduct unbecoming to an ethical physician; (2) nonattendance in the clinic without reasonable explanation.

As this alleged remedy is enjoying an intensive advertising campaign nearby the hospital, there have been many inquiries in regard to Dr. Rubin's connection with the hospital and whether or not the hospital is sponsoring the sale of this product. I therefore welcome the opportunity of indicating that Dr. Rubin has no connection in any capacity at the present time with the Beth David Hospital, and whatever connection he did have was a very minor one not at all synonymous either in experience or in title with his claims of being the "chief medical clinician" to the institution.

ALBERT S. HYMAN, M.D., New York.
Superintendent, Beth David Hospital.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PREVENTION OF POISONING FROM EXHAUST GASES

To the Editor:—Can you tell me of any substance which will combine with exhaust gases in garages and service stations, so as to lessen the toxicity of the air where ventilation is incomplete, or any other improvement if that is impracticable?

A. R. C., M.D., Winchester, Mass.

ANSWER.—No substance is known or is ever likely to be discovered that will neutralize the toxicity of carbon monoxid in air. Even pure oxygen would not do it completely. The present conditions in garages are extremely unhealthful. The discharge of the exhaust gas near the floor results in mixing the gas so completely with the air of the garage that adequate ventilation with fresh air is extremely difficult or even impossible. On the other hand, if cars were made so that the exhaust was discharged upward it would rise to the ceiling, for, being warm, it is much lighter than air, and the gas would then easily find its way out through ventilators in the ceiling of the garage. For this purpose, Professor Henderson and Dr. Haggard of Yale University, who have made an extensive study of this matter, have urged that automobiles should be built with the exhaust pipe turned upward and extending a few inches above the roof of each car. In some types of automobile, the exhaust pipe extends back of the car body far enough so that a piece of flexible pipe may be easily slipped over it and the end turned upward. When this is done, the gases are discharged upward and rise to the roof so that the contamination of the air of the garage is greatly diminished. Unfortunately, the shape of the exhaust on many makes of automobiles is such that the piece of pipe is not easily attached.

As Henderson and Haggard point out, carbon monoxid occurs nearly always among the products of combustion, and is contained in the smoke from nearly all furnaces and stoves. The gas thus produced is easily eliminated from our dwellings and our streets by means of chimneys. They urge that the measure of amelioration applicable to the automobile is vertical exhaust, which is simply the application of the principle of the chimney.

"STANDARDIZATION OF DIGITALIS"

To the Editor:—1. Please inform me by which of the methods named below digitalis can best and most accurately be assayed and physiologically standardized, with particular reference to its constancy and clinical dependability in use for the human heart. The methods in question are: one hour frog method; minimal lethal dose frog method; minimal lethal dose guinea-pig method, and cat method. Can you cite references in recent literature bearing on this point? 2. Has a fat free tincture of digitalis any proved advantage over a tincture not fat free? If so, what? 3. Is it universally conceded that the cat method of standardization results in a product more reliable than by other methods? Please withhold my name.

D. R. M., N. C.

ANSWER.—1. It has not been demonstrated that any one of the four methods cited is best for the assay of digitalis, having in mind the clinical dependability of the drug. Some maintain that the cat method is most reliable; others are

equally enthusiastic over the commendable features of the guinea-pig method; still others maintain that tests on cold-blooded animals are most reliable. In 1909, Edmunds and Hale made an exhaustive study in an endeavor to determine the best assay method for digitalis. After eliminating other methods, they were unable to choose between the twelve hour toxic frog method and the one hour frog method. The method adopted for the U. S. Pharmacopeia, which is now in force, is the one hour frog method. In 1911, Hale selected the one hour frog method as being the most representative by which to assay digitalis preparations of unknown strength. Likewise, Roth employed this method for a similar purpose in 1916.

2. Roth found that fat free tinctures had no advantages over the U. S. P. tincture of digitalis. On the contrary, he found that some of these fat free tinctures were so unstable that he advised manufacturers not to market them without stating the date of their manufacture on the label. "Fat free" tincture of digitalis was introduced under the belief that the fat from the leaf produced gastric disturbance; but Hatcher and Eggleston fed this fat to cats, and found that it had no emetic action whatever (THE JOURNAL, Feb. 5, 1913, p. 499). After an investigation of the subject, the Council on Pharmacy and Chemistry concluded that there is no essential difference in action between "fat free" tinctures of digitalis and the product official in the U. S. Pharmacopeia (Reports of the Council on Pharmacy and Chemistry, 1921, p. 21). A few brands of these tinctures have been admitted to New and Nonofficial Remedies because these particular brands are standardized (N. N. R., 1923, p. 110).

3. It is not. Sollmann (Manual of Pharmacology) believes that the Hatcher "cat method is probably the best for the investigation of fundamental clinical problems."

The following papers contain the principal discussions on the subject:

Reed, E. D., and Vanderkleed, C. E.: The Standardization of Preparations of Digitalis by Physiological and Chemical Tests, *Am. J. Pharm.* **80**: 110, 1908.

Houghton, E. M., and Hamilton, H. C.: The Pharmacological Assay of the Heart Tonics, Am. J. Pharm. **81**: 461, 1909.

Edmunds, C. W., and Hale, Worth: The Physiological Standardization of Digitalis, Bull. 48, Hyg. Lab., U. S. P. H. S., 1909.

Hatcher, R. A., and Brody, J. G.: The Biological Standardization of Drugs, *Am. J. Pharm.* **82**: 360, 1910.

Hale, Worth: Digitalis Standardization and the Variability of Crude and Medicinal Preparations, Bull. 74, Hyg. Lab., U. S. P. H. S., 1911.

Hamilton, H. C.: The Heart Tonic Unit, *Am. J. Pharm.* **84**: 97, 1912.

Roth, G. B.: Digitalis Standardization: The Physiological Evaluation of Fat Free Digitalis and Commercial Digitalis, Bull. 102, Hyg. Lab., U. S. P. H. S., 1911.

Hamilton, H. C.: The Biological Methods for Digitalis Assay, *Am. J. Pharm.* **92**: 529, 1920.

DETERIORATION OF DIGITALIS PREPARATIONS

To the Editor:—In advertising literature which has come to me recently, I have noted with particular interest the claim made for a specialty preparation of digitalis that "it keeps indefinitely." I take the statement as intended to convey the suggestion that this particular preparation does keep definitely, maintaining its full original strength for unlimited time. This claim differs so from our accepted idea concerning digitalis preparations in general that I am wondering whether data are available concerning the preparation in question, which is called digifolin, which would warrant one accepting the claim as proved.

W. G. FRALICK, M.D., New York.

ANSWER.—The scientific evidence available indicates that all liquid digitalis preparations deteriorate with age. In the *Journal of the American Pharmaceutical Association* (**7**:433, 1918), Hamilton wrote: "It is a well known fact that digitalis has not yet been prepared in any absolutely stable form adapted to clinical use."

"TREATMENT OF ERYSIPELAS MIGRANS"

To the Editor:—In the treatment of erysipelas migrans given in Queries and Minor Notes (THE JOURNAL, February 16, p. 569), I have found that by mixing the nonflexible collodion with enough methylene blue to give it a color, it is easier to see the breaks or cracks; and, instead of making a constricting furrow around the infected area, I cover the whole area with collodion, which will eliminate suffering and promote recovery.

EVALD OLSON, M.D., Lovell, Wyo.

FREEZING OF DIPHTHERIA ANTITOXIN

To the Editor:—I would have you make known through Queries and Minor Notes whether a temperature of 20 degrees below zero F. is damaging to diphtheria antitoxin. I have some that was exposed for about forty-eight hours to that temperature, as I kept it in a jar in a room (lean-to) adjoining my house, during the winter months.

J. F. C., M.D., Oregon, Mo.

ANSWER.—The freezing of diphtheria antitoxin will alter its effectiveness very little.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, April 1. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

CONNECTICUT: Hartford, March 11-12. Sec., Reg. Bd., Dr. Robert Lee Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, March 11. Sec., Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport.

CONNECTICUT: New Haven, March 11. Sec., Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, April 8. Sec., Dr. Edgar P. Copeland, Washington.

HAWAII: Honolulu, April 14. Sec., Dr. Guy C. Milnor, 401 Beretania Street, Honolulu.

IDAHO: Boise, April 1. Director, Mr. Charles Laurenson, Boise.

ILLINOIS: Chicago, April 15-17. Supt. of Registration, Mr. V. C. Michels, Springfield.

MAINE: Portland, March 11-12. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, March 11-13. Sec., Dr. Charles E. Prior, 144 State House, Boston.

MINNESOTA: Minneapolis, April 1-3. Sec., Dr. Thomas McDavitt, 539 Lowry Bldg., St. Paul.

MONTANA: Helena, April 1. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

NEW HAMPSHIRE: Concord, March 13-14. Sec., Dr. Charles Duncan, Concord.

NEW MEXICO: Sante Fe, April 14-15. Sec., Dr. W. T. Joyner, Roswell.

OKLAHOMA: Oklahoma City, April 8-9. Sec., Dr. J. M. Byrum, Shawnee.

RHODE ISLAND: Providence, April 3-4. Sec., Dr. B. U. Richards, State House, Providence.

UTAH: Salt Lake City, April 1. Director, Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

Delaware June Examination

Dr. P. S. Downs, secretary, Delaware Board of Medical Examiners, reports the written, oral and practical examination held at Wilmington, June 19-21, 1923. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. One candidate was examined and passed. Two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Temple University		(1922)	76.2

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Maryland		(1921)	Maryland
University and Bellevue Hospital Medical College		(1908)	New York

Hawaii October Examination

Dr. J. E. Strade, acting secretary, Hawaii Board of Medical Examiners, reports the written examination held in Honolulu, Oct. 8-11, 1923. The examination covered 7 subjects and included 55 questions. An average of 75 per cent. was required to pass. Five candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons of San Francisco		(1901)	64.5*
Washington University Medical School		(1923)	83
University of Pennsylvania	(1922) 86.5,	(1923)	80
Chiba Special Medical School, Japan		(1922)†	68.5*

* Credit allowed for years of practice.
† Graduation not verified.

Ohio Reciprocity Report

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports that 20 candidates were licensed by reciprocity, Oct. 2, 1923. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1923)	California
Fort Wayne College of Medicine		(1902)	Washington
Kentucky School of Medicine		(1897)	Kentucky
Louisville Medical College		(1893)	Kentucky
University of Louisville		(1910)	Indiana
Detroit College of Medicine and Surgery		(1916)	Michigan
Univ. of Michigan Med. School	(1913), (1921), (1922, 4)		Michigan
University of Nebraska College of Medicine		(1921)	Nebraska
Cornell University		(1907)	New York
New York Homeopathic Med. Coll. and Flower Hosp.		(1910)	New York
Temple University		(1915)	Penna.
Meharry Medical College		(1912), (1917)	Texas
University of Virginia Department of Medicine		(1919)	Virginia
Marquette University		(1923)	Wisconsin

Book Notices

DIABETIC METABOLISM WITH HIGH AND LOW DIETS. By Elliott P. Joslin. Paper. Pp. 334. Washington: The Carnegie Institution of Washington, 1923.

This monograph is the third from the Carnegie Institution on the subject of the metabolism of diabetes, and is much more extensive in scope than either of the previous ones. Data from 113 cases are now available and are published in the present study. The work was all done with private cases, and Joslin believes that he was able to get better and more intelligent cooperation from this class of patients. The subject matter under discussion is still not out of the realms of speculative thought, as is evidenced by certain changes in conclusions as compared to previous work by the same author. For that reason the present monograph is particularly interesting and important. The pulse rate, in relation to weight, food intake, severity of the diabetes, acidosis, blood sugar and metabolism, is carefully studied. The metabolism of the diabetic patient with and without food naturally occupies the main portion of the study, and a great deal of attention is given to the respiratory quotient. The experiments are described with such care and detail, and they are so thoroughly planned and carried out, that review of them, except on the basis of an exceedingly detailed study, is superfluous. Some of the conclusions of Joslin are particularly interesting. Forty-five patients free from acidosis had an average pulse rate of 63 beats, while twenty-four patients with severe acidosis showed an average of 73 beats. The metabolism in diabetes approximates normal in the mild and moderate types; there are great variations, the severest types of cases (since 1914) presenting a lower metabolism than that of the mild or moderate forms. Food and acidosis were the most important factors in producing these variations. Joslin believes that the extremely low respiratory quotients which have worried students of diabetes are forced quotients, due to the ingestion of much protein and fat with little carbohydrate. The book stands out as the most prominent contribution to the study of the metabolism of diabetes now available.

HANDBUCH DER KINDERHEILKUNDE. Ein Buch für den praktischen Arzt. Herausgegeben von Prof. Dr. M. von Pfaundler und Prof. Dr. A. Schlossmann. 1. Band. Third edition. Paper. Pp. 962, with 216 illustrations. Leipsic: F. C. W. Vogel, 1923.

The first volume of a new edition of Pfaundler and Schlossmann's collective publication has recently appeared. The editors contemplated the production of these volumes before the close of the war, though the completion of the work was beset with many difficulties. The former editions were translated into Spanish and Italian, and there also appeared an English translation published in America. Since the appearance of the second edition in 1910, definite advances in the knowledge of pediatrics have occurred. Therefore the editors thought that a new edition was necessary. In planning the new book they conceived the idea that the authors who had written the original chapters in the former editions should be assigned new subjects, since the author, in revising his own chapter, might take a partisan view.

In this first volume there is a brief history of pediatrics by Hermann Brüning of Rostock. M. Pfaundler of Munich contributes a chapter on the biology and the general pathology of the early developmental period. This is a philosophical treatise on growth and development. He also considers the reactions of the fetus and infant to maternal injuries and diseases, and while this chapter is in some respects speculative, it is highly suggestive to those who are interested in the unsolved problems in the pathology of infancy and young childhood. Joseph Husler writes on morbidity and mortality in childhood. He points out that in various European countries during the last ten years the infant mortality has been reduced one-half. Finkelstein contributes a short chapter full of many practical suggestions. He says that a children's physician must have a certain personality which fits him for his work. One group acquires unconsciously and with ease correct methods; another learns the art after long practice; a third group never acquires the art of handling children successfully. If he is to succeed, he must be endowed with pedagogic and psychologic insight. He must recognize not only disease in a child, but also the faults of the environment. The author gives the usual details of history taking, and the importance of errors of feeding and disturbances of nutrition in the production of disease. He emphasizes the value of inspection as a diagnostic aid.

Schlossmann writes interestingly on general prophylaxis and treatment, and advocates fresh air for normal children, as well as those suffering from the acute infectious diseases and tuberculosis. He gives minute directions for the prophylaxis of rickets and anemia, and gives sensible advice about school hygiene and proper construction of school desks, and valuable instructions for the management of patients during acute illness. He also discusses the value of climate, sunlight and artificial light treatment, gymnastics, massage and electrotherapy, and he concludes his paper with some interesting suggestions on psychotherapy in the management of neuropathic children. Wilhelm Camerer of Stuttgart contributes a chapter on milk. Rudolph Theodor Jaschke of Giessen writes on development, anatomy, physiology and pathology of the female breast, and the technic and difficulties of nursing. This paper is well illustrated. Hans Rietschel presents the subject of metabolism and nutrition of the normal infant. Erich Müller of Berlin discusses metabolism and nutrition of older children. These chapters are complete, and give in detail a great mass of facts and figures and statistics arranged in tabular form which will be invaluable for the student and investigator. The pathology of the new-born is treated by Leo Langstein and Lotte Landé of Berlin. This paper is well illustrated and considers the usual diseases of the early days of life.

Ylppö of Helsingfors presents the subject of premature infants. This author is undoubtedly the most outstanding contributor in recent times on premature infants. Carl Hochsinger of Vienna has written a chapter on rickets. Hochsinger was the associate of Kassowitz in the Children's Institute of Vienna. Kassowitz was the pioneer in the modern study of rickets. Hochsinger presents largely the views of his former master. The clinical descriptions and illustrations are excellent, though in his pathologic consideration he is not in agreement, as he says, with the "Hopkins school of New York." He also doubts whether a food poor in vitamin A will produce rickets, or whether a food rich in vitamin A will prevent rickets, though, like his teacher, he believes that phosphorized cod liver oil is the best remedy. He refers to the chemical researches of American investigators, though he does not consider the influence of light in the prevention and treatment of this disorder. However, in considering the seasonal occurrence he quotes the teaching of Kassowitz that rickets is a common disease of the winter months, and that its incidence is rare in the summer, when children are outdoors. For this clinical manifestation he offers no adequate explanation. He conjectures that the undiscovered factor in the etiology of rickets is an anomaly in the function of the endocrine system, the nature of which is unknown. Infantile scurvy is considered by Walter Freund of Breslau. The diseases of the blood and the blood-making organs are treated by Erich Benjamin of Ebenhausen bei Munich. Benjamin considers the usual secondary and primary anemias of infancy and childhood. His chapter on the chlorotic form of anemia, aplastic anemia and chloroma are especially interesting, and should be read in the original. Emil Wieland of Basel furnishes the chapter on the diseases of the thyroid gland. It is well illustrated, and considers in detail simple goiter, congenital goiter, acute and chronic inflammation of the thyroid gland, hypofunction and hyperfunction, and exophthalmic goiter as it occurs in childhood. The chapter on the thymus gland is written by Rudolph Fischl of Prague.

The monographs contained in this volume are valuable contributions to pediatric literature. One marvels that such excellent papers have been written during a period of extraordinary stress and strain, and also that the mechanical portion of the book, including paper, printing and illustrations, are of the first quality, despite the fact that material resources were at the lowest ebb. The volume should be of interest to every student of modern pediatrics.

CLINICAL ROENTGENOLOGY OF DISEASES OF THE CHEST. By H. Wessler, M.D., Adjunct Physician and Associate Roentgenologist, Mount Sinai Hospital, and Leopold Jaches, M.D., Roentgenologist, Mount Sinai Hospital. Cloth. Price, $14. Pp. 560, with 430 illustrations. Troy, N. Y.: Southworth Company, 1923.

This volume appears at a time when books on roentgen-ray examinations of all kinds are appearing in great numbers. The authors' work is founded on their own experience. Every variety of pathologic condition that one may encounter is discussed, and reproductions of original plates are presented. The authors give careful consideration to the clinical side, and at the same time succeed in correlating the pathologic condition with the result of roentgenologic examination. Their technic is rather different from the accepted one, in that they photograph the patients at a distance of 4 feet, and do not use intensifying screens. They use single plates, and the results are excellent. In the main, they agree with such well accepted views as that the blood vessels furnish the marking of the lungs and that root shadows do not reflect a normal condition but at the same time are not evidences of tuberculosis. Some of their statements are rather extreme, and require more proof. It is their experience that when tuberculosis is of sufficient extent to produce clinical symptoms, it is already susceptible to roentgen-ray demonstration. They also believe that when hemoptysis is due to tuberculosis, infiltrations can be invariably demonstrated on the roentgenogram. They do not lay much stress on the work of Dunham, although they do not use his name, as in the interpretation of extensions from the hilum to the periphery as evidences of pulmonary tuberculosis. In their opinion, tuberculosis can be recognized at first as small subclavicular infiltrations, more likely to occur in the axillary than mesial half. They also feel that a negative plate effectually excludes tuberculosis. There are chapters devoted to tumors and parasitic infections of the lungs, diseases of the pleura and mediastinum, and abnormalities of the chest wall. The book is well written and well illustrated. Most of the illustrations are reproductions of roentgenograms; a few are diagrammatic, to bring out points of special interest. There are many citations of case histories. There is no bibliography.

THEORETISCHE BIOLOGIE VOM STANDPUNKT DER IRREVERSIBILITÄT DES ELEMENTAREN LEBENSVORGANGES. Von Professor Dr. Rudolf Ehrenberg, Privatdozent für Physiologie an der Universität Göttingen. Paper. Price, $2. Pp. 348. Berlin: Julius Springer, 1923.

The author discusses biologic principles from the standpoint of the physiologist. The title "Theoretische Biologie" is used in the same sense as "theoretical chemistry" or "theoretical physics." A wide acquaintance with biologic literature is displayed, and a great number of topics are discussed briefly. There are sections dealing with death, cell division, enzymes, autolysis, senility, growth, digestion, vitamins, hunger, immunity, cancer, atrophy, heredity, evolution and nervous physiology. Such statements as "Vitalism belongs to the field of philosophy, and its followers are or become philosophers," and "We know in perhaps a majority of cases why a patient has become sick, but we seldom know why he recovers," are characteristic. The medical man who reads German readily will find here a relatively brief survey of biologic science pertinent to the field of medicine.

CLEFT LIP AND PALATE. By Truman W. Brophy, D.D.S., M.D., LL.D., Oral Surgeon to Michael Reese and St. Joseph's Hospitals, Chicago. Cloth. Price, $6. Pp. 340, with 466 illustrations. Philadelphia: P. Blakiston's Son & Co., 1923.

Out of a rich experience Dr. Brophy has presented a thesis worthy of serious consideration. He is entitled to first credit as a pioneer in demanding early surgical correction of congenital defects of the lip and palate. He has encountered severe opposition and criticism, but his arguments have come to be recognized as sound. The term "cleft lip" employed by the author is a good substitution for harelip. The author rightly claims *a priori* rights in advocating early treatment and for the use of lead plates and silver tension sutures in correcting the bony defect. Exception to the radical nature of the Brophy operation is, however, justified. The resulting trauma and shock are not compensated; the introduction and adjustment of silver sutures and lead plates produce the major trauma and shock. By a simple molding process the cleft may be easily reduced and the bones held in position by a single silkworm-gut suture, eliminating the use of silver wires and lead plates entirely. Many surgeons rely on the resilience of the tissue to draw the bones together once the lip has been closed, but the method is not always successful. A mattress silkworm-gut suture will accomplish all that may be expected of silver wires and lead plates for relief of tension in the soft palate operation, and has the advantage of simplicity in introduction and does not produce the irritation incident to lead plate. Exception may be taken to the devices employed for relieving tension following the lip operation. If the lip operation has been properly done by relief of tension through adequate dissection, no tension relief is necessary. The technic suggested for correction of the premaxilla in double harelip and palate through a division of the vomer obliquely is objected to because of the division of the vessels. It is a very simple matter to remove a section of the bone by dividing the mucosa in the median line after the fashion of a submucous resection; in this way the whole circulation is preserved. On the whole, the book may be properly looked on as a sound contribution, and the author deserves the commendation of the medical fraternity for his fidelity in the interest of early treatment. The illustrations selected entirely from the author's cases are profuse and illuminating. The chapter on infant feeding by Dr. Belknap, the chapter on medical care of cleft palate patients by Dr. Schott, and Hudson-Makuen's discussion of speech training are valuable and proper ancillaries. Cases of cleft palate in the baby are, in the first instance, medical, and become medical immediately after operation. The pediatrician, therefore, has a coequal responsibility with the surgeon.

HANDBOOK OF SURGERY. By George L. Chiene, M.B., C.M., F.R.C.S., Surgeon, Edinburgh Royal Infirmary. Leather. Price, $4.50. Pp. 592, with 109 illustrations. New York: William Wood & Co., 1923.

This deals with only the more common surgical conditions, the rarer ones being purposely omitted. There are many pictures, some of which illustrate the text, others being simply good photographs. The book is difficult to classify. It is avowedly not written for surgeons. Its contents proclaim that it is not a textbook for students. The author states that the book is not intended to compete with the larger surgical textbooks, having been written for those who have not time to study them. But there are on the market numerous textbooks of surgery which deal with various surgical entities in as short and concise a manner as possible. To abbreviate still further would be to do so at a loss of necessary material. To compile a book which omits many of the rarer and less important surgical entities reduces the size of the book, but does not influence the amount of reading matter dealing with any one subject. It is not clear what those who have not time to study the larger books can gain from this work.

A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS. By E. Poulsson, Professor of Pharmacology in the University of Christiania. English edition edited by W. E. Dixon, M.A., M.D., F.R.S., Assessor to the Regius Professor of Physics, Cambridge. Cloth. Price, 25 shillings net. Pp. 519, with illustrations. London: William Heinemann (Medical Books) Lit., 1923.

This work is well known throughout the Scandinavian countries and Germany; its translation into English permits an insight into continental European views. Unlike most works of this character in America, the contents remind one more of a bedside therapeutics than of the science of pharmacology. For instance, the author gives the impression of being skeptical concerning the use of hypophosphites and glycerophosphates, but he does not show why they are valueless, which he no doubt could have done readily. The discussions of the various drugs are extensive from a clinical point of view, and the book is one that may be read with profit by those who desire to compare European opinions with ours.

LEHRBUCH DER KINDERHEILKUNDE FÜR AERZTE UND STUDIERENDE. Von Dr. med. Bernhard Bendix, A. O. Professor der Kinderheilkunde. Eighth edition. Paper. Price, 20 Swiss francs, 65 centimes. Pp. 639, with 100 illustrations. Berlin: Urban & Schwarzenberg, 1923.

This book has had the reputation of being one of the most practical of the short works on pediatrics. In this edition the author has revised and brought down to date much of his former material.

Medicolegal

Removal of Uvula—Presumption—Expert Testimony

(Schmidt v. Stone (N. D.), 194 N. W. R. 917)

The Supreme Court of North Dakota, in reversing a judgment for $10,333 damages that was rendered in favor of the plaintiff, says that her mother testified that in 1915 she took the plaintiff, then a girl 8 years old, to the office of the defendant to have her adenoids removed. The girl, 15 years old at the time of the trial in 1922, said she went there to have her tonsils removed. An operation was performed, and the mother discovered a few days afterward that the plaintiff's uvula was gone. The mother and the plaintiff testified that, following the operation, the plaintiff choked when she tried to swallow food, especially on solids; that food and water tended to go the wrong way; that the plaintiff's voice was affected and that she did not sing after the operation, although she did before quite well; that she suffered from frequent and severe headaches, colds, and earaches after the operation, but not before; that she had difficulty in swallowing and in talking, and that her enunciation was affected. The defendant denied the performance of the operation, and even adduced evidence to show his physical inability, through an accident, to perform it at the time alleged, but the court thinks that there was substantial evidence from which the jury could find against him on his contention that he had never performed any operation whatever on the plaintiff, and had never seen her before.

It was undoubtedly the duty of the plaintiff to establish by a preponderance of the evidence that the condition complained of by her was caused by the negligence of the defendant, and therefore it became incumbent on her to trace a causal connection between the ailments detailed and the loss of the uvula. The evidence on this point was not of the most convincing or satisfactory character from the standpoint of the plaintiff. But this court is not prepared to say that the testimony of the expert witness for her was not sufficient to create a conflict and, since the jury found on that testimony in favor of the plaintiff, as far as the resulting injuries and the damages were concerned, this court is not prepared to say that there was no substantial evidence in the record to support the finding of the jury in this regard.

In the absence of evidence to the contrary, the law presumes the exercise of a reasonable degree of care and skill by a physician and surgeon, and that the defendant was innocent of wrong. Nor would the fact that defects appeared after the operation or treatment, unless of such a character that negligence must be assumed from their unexplained presence, which was not the case here, constitute evidence of negligence. The maxim of res ipsa loquitur (the thing speaks for itself) had no application. Negligence will not be imputed to a physician without evidence or proof thereof.

Complaint was made of the instructions of the trial court with reference to the weight of expert testimony. The court said, in substance, that expert testimony was not binding on the jury, but that the jury was at liberty to give it such weight as the jury deemed the testimony fairly entitled to. There was conflict in the expert testimony on matters beyond the province of lay witnesses to explain or understand. It might be that the instruction was open to criticism; but, on the whole, the supreme court thinks that the instruction fairly submitted to the jury the proposition that the weight of the evidence was for the jury, and that, as between conflicting evidence, expert as well as otherwise, the jury must decide. This was not a case in which all the expert evidence was one way on technical matters wholly beyond the knowledge or experience of ordinary witnesses. A case may be conceived in which it would be improper for the jury to disregard expert testimony. This court does not decide in this case that there may not be instances in which a jury would not be justified in disregarding uncontradicted expert testimony. All it decides is that the case at bar did not call for the application of that doctrine, or for a discussion of that question. All the experts admitted that much doubt and uncertainty exist among medical men as to the function, if any, of the uvula. Nor is the jury required to believe the testimony of defendants as to the conditions found to exist.

However, there was error in the admission of evidence concerning irrelevant matters and in submitting the competence of impeaching testimony to the jury.

Intern an "Employee" Within Compensation Act

(Bernstein v. Beth Israel Hospital et al. (N. Y.), 140 N. E. R. 694)

The Court of Appeals of New York affirms an order of the appellate division affirming an award of the state industrial board (199 N. Y. Supp. 740), in this proceeding against a hospital and an insurance carrier, under the workmen's compensation act. The court says that the claimant had been connected with the hospital for about fourteen months, and was the junior house physician, when, after he had performed a necropsy under the direction of the superintendent, and was sewing up the corpse, the needle slipped, puncturing his finger, which was followed by blood poisoning. The agreement was that he should serve for two years without pay other than board, lodging and hospital uniforms; and the question was whether he was an employee within the meaning of the workmen's compensation act. The necropsy was part of the administrative routine; and the claimant, while so engaged, was the employee of the hospital under whose orders he was acting. Liability in this case was to be determined by the contract, express or implied, between hospital and physician. The relation as between themselves was to be characterized as a relation of employment. A distinction is to be drawn for that purpose between the position of a visiting or consulting physician, and that of an intern, who has placed his time and service at the call of a superior. This claimant was under a duty to spend his days and nights at the hospital, and to render any service, administrative or medical, exacted by the hospital through its administrative agents, within the range prescribed by propriety and custom. He was a servant or employee by every test of permanence of duty, of intimacy of contact, and of fulness of subjection. The fact that interns in this hospital (unlike those in many others) receive no money for their services, but only lodging, board and uniforms, does not defeat their right to an award under the statute. The hospital does not carry on its business for pecuniary gain. It elected, however, to insure. The carrier, having accepted its premium, is bound to the same extent as if gain rather than benevolence had inspired its activities.

Damages Allowed for Losses of Legs

(Thompson v. Smith (Mo.), 253 S. W. R. 1023. Glarizio v. Davis, Agent (Neb.), 194 N. W. R. 866. Toledo, C. & O. R. R. Co. et al. v. Miller (Ohio), 140 N. E. R. 617)

The Supreme Court of Missouri, Division No. 1, says, in the first case, that it has become the established practice of this court to limit the amount of the recovery of damages for the mere loss of a leg below the knee to $10,000, and that the court is satisfied that this rule ought not, except for weighty reasons, to be disturbed. On the other hand, a rule to secure uniformity should not be used in the interest of inequality and discrimination among suitors. It is evident that, should one receive an injury finally resulting in the loss of a leg, and be compelled to make a fight for his life costing him $10,000, and judgment for that amount should be given him, he would get nothing for the limb. In this case, when the physician was called, he found the plaintiff in a serious condition. The bones of the lower part of her leg were shattered, the skin and flesh torn and bruised, and the limb badly swollen from foot to hip, and blood poisoning had set in. The lower part of the leg was amputated and the remainder saved in a torn and bruised condition. At the time of the trial, seven or eight months afterward, the plaintiff had accumulated a liability to her physician of $530. Her hospital bill amounted to $300, and she was then trying to wear an artificial leg with very limited success. She said in her brief that in her efforts in that direction she had purchased three artificial legs at a cost of $150 each. These things showed that the permanent loss of her leg below the knee did not measure the extent of her injury, and that she was still suffering and

uncured at the time of the trial. The jury then had her before it and had the right to pass on her condition and the probable result of her injuries, from the evidence, and, not only to assess damages for the permanent loss of her limb, but also for the expense and suffering she would in all probability have still to endure before she could attain the normal status of a woman with a wooden leg. She was given a verdict for $15,000; and, while the court thinks that, under the evidence, the verdict was excessive as to the last-mentioned items, it does not think that $2,000 would have been an unreasonable sum to include them; wherefore a remittitur of $3,000 from the amount of the verdict must be made, or a new trial would be granted.

The Supreme Court of Nebraska says, in the Glarizio case, that the plaintiff when injured was an experienced laborer, 62 years old, of robust physique, and earning $3.20 a day. His right leg was severed between the hip and the knee, and he complained still, two years later, of suffering from some injury to his head. He was awarded $13,000 damages, and the court does not consider that, under the circumstances, the verdict was so large that a remittitur should be required. The injury was sustained in July, 1919, and the verdict was returned in May, 1921, which we must recall was during the time when labor and all other things were at war-time prices, which condition probably to some extent affected the amount of the verdict. Assuming that this was so, the plaintiff had the same right as others to have his financial matters adjusted on the current basis.

In the Miller case, the Supreme Court of Ohio says that the plaintiff was a young man who was alleged to be in good health and physically sound and who was in the business of conducting a merry-go-round at a carnival showing in town at the time when, at a railroad crossing, he had both legs cut off. The case was tried twice, each time a verdict being rendered in his favor for $75,000 damages. But, while the verdict was a large one, the effect on the man's life, his past and present suffering, the uncertainties the future had for him, and his ability to get about in modern conditions of travel and traffic in city streets and thoroughfares, might be elements such that the jury, on full consideration, would feel justified in returning the amount it did. This court cannot, under the circumstances, affirmatively find that passion and prejudice intervened, or that the verdict was manifestly excessive, in consequence of which it does not feel justified in setting aside the judgment entered, on the second verdict, for $75,000.

Powers of Medical Board Not Changed

(Meeker et al. v. Scudder et al. (Ohio), 140 N. E. R. 627)

The Supreme Court of Ohio, in affirming a judgment of the court of appeals that affirmed a judgment of the court of common pleas of Hamilton County denying the plaintiffs an injunction restraining the defendants from administering the Ohio Medical Act under the Administrative Act of 1921, says that it was urged that, by virtue of the provisions of the latter act, the prior powers of the state medical board are now vested solely in the department of education. But it is impossible to draw from the language of the act relied on to sustain that contention any purpose to cut down the previous power of the medical board, for it appears that the department of education, which is the department to which the state medical board is now attached under the administrative act, has merely the power or duty "to recommend" standards, methods, etc. It is not obligatory on the state medical board to follow such recommendations. The provision that "the following boards and committees shall be attached to the department of education" (one of them being the state medical board) seems decisive of the proposition that there was no purpose in the reorganization (administrative) act in any wise to lessen or impair the powers theretofore vested in the medical board. Moreover, following that provision, this language appears: "Such boards and their officers shall continue to exercise their functions as heretofore." It would be almost an insult to human intelligence to say that this language means anything else than just exactly what it says. The old statutes furnished the measure of the power of the various boards and were in no wise changed.

The supreme court finds nothing in the administrative act in any wise finally modifying or substantially changing the powers of the Ohio state medical board as they existed prior to the administrative act or code. It finds nothing in the administrative act, touching the Ohio state medical board, which in any wise raises a debatable constitutional question.

The defendants insisted that an action in equity was not maintainable. Obviously, an action in equity cannot lie so long as there is adequate remedy at law. The statutes of Ohio touching the powers of the Ohio state medical board with regard to examinations have been involved in numerous adjudications, and this court has upheld the right of a hearing before the board, and of appeal to the courts for any wrongful act done to any applicant for examination or to any practitioner of chiropractic. There being a full and adequate remedy at law, there is no right to an action in equity by way of injunction. Again, it was urged by the defendants that, even if this were a proper action in equity, such action from its very nature and purpose could not be brought as a class suit. It is self-evident, under the statutes pertaining both to the preliminary qualifications of a general educational nature and to the professional qualifications to practice medicine either under the general medical act or the limited medical act, that each applicant must stand on his own qualifications, dependent solely on the facts and circumstances of his own case. The supreme court finds under the record that the plaintiffs had not capacity to sue in the relation that they had assumed; that this was not properly and legally a class suit; and that the petition as such was rightfully dismissed.

The defendants further complained that this suit was not lawfully brought in Hamilton County. It is hardly necessary to observe that these public officers against whom suit was brought in their official relation officially resided in Franklin County; that their official duties were administered from that office; and that Franklin County was the proper county, under the record in this case, in which to bring such suit. In other words, under Section 11271 of the General Code of Ohio, actions against the Ohio state medical board and other public officers having their official places of business in Franklin County, and in no other county, can be instituted only in Franklin County.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, April 15-18 Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association of Anatomists, Buffalo, N. Y., April 16-19. Dr. Lewis H. Weed, Johns Hopkins Medical School, Baltimore, Secretary.

American Gastro-Enterological Association, Atlantic City, May 5-6. Dr. John Bryant, 338 Marlborough Street, Boston, Secretary.

American Surgical Association, Baltimore, April 17-19. Dr. Robert B. Greenough, 8 Marlborough Street, Boston, Secretary.

Association of American Physicians, Atlantic City, May 6-7. Dr. Thomas McCrae, 1929 Spruce Street, Philadelphia, Secretary.

Hawaii, Medical Society of, Honolulu, April 26-28. Dr. W. K. Chang, McCandless Block, Honolulu, Secretary.

Illinois State Medical Society, Springfield, May 6-8. Dr. W. D. Chapman, Silvis, Secretary.

Iowa State Medical Society, Des Moines, May 7-9. Dr. T. B. Throckmorton, Bankers Trust Building, Des Moines, Secretary.

Kansas Medical Society, Wichita, May 7-8. Dr. J. F. Hassig, 800 Minnesota Avenue, Kansas City, Secretary.

Louisiana State Medical Society, Opelousas, April 21-24. Dr. P. T. Talbot, 1551 Canal Street, New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 22-24. Dr. J. A. Chatard, 1211 Cathedral St., Baltimore, Secretary.

Missouri State Medical Association, Springfield, May 6-8. Dr. E. J. Goodwin, 3529 Pine Street, St. Louis, Secretary.

National Tuberculosis Association, Atlanta, Ga., May 7-10. Dr. George M. Kober, 370 Seventh Avenue, New York, Secretary.

New York, Medical Society of the State of, Rochester, April 22. Dr. Edward L. Hunt, 17 West 43d Street, New York, Secretary.

North Carolina, Medical Society of the State of, Raleigh, April 15-17. Dr. L. B. McBrayer, Sanatorium, Secretary.

South Carolina Medical Association, Orangeburg, April 15-17. Dr. Edgar A. Hines, Seneca, Secretary.

Tennessee State Medical Association, Knoxville, April 8-10. Dr. J. F. Gallagher, Jackson Bldg., Nashville, Secretary.

Texas, State Medical Association of, San Antonio, May 6-8. Dr. Holman Taylor, 207½ W. 11th Street, Fort Worth, Secretary.

Western Electro-Therapeutic Association, Kansas City, April 17-18. Dr. Charles Wood Fassett, 115 E. 31st Street, Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

27: 95-194 (Feb.) 1924

*Extinction Tests in Scarlet Fever. J. A. Toomey and J. D. Nourse, Cleveland.—p. 95.
*Enterolith Causes Chronic Obstipation in Breast-Fed Infant. E. L. Miller and F. C. Neff, Kansas City, Mo.—p. 105.
*Case of Healed Miliary Tuberculosis. R. W. Baer, Frederick, Md.—p. 110.
*Tuberculosis of Tonsils and Adenoids. P. B. MacCready and S. J. Crowe, Baltimore.—p. 113.
*Blindness and Other Diseases in Children Arising from Deficient Nutrition (Lack of Fat-Soluble A Factor). C. E. Bloch, Copenhagen, Denmark.—p. 139.
*Rickets in Breast Fed Infant. L. R. DeBuys, New Orleans.—p. 149.
Review of Literature for 1921 and 1922 on Neurology of Children. A. Strauch, Chicago.—p. 163.
*Acute Hemorrhagic Pancreatitis Resulting from Roundworms. W. E. Gallie and A. Brown, Toronto.—p. 192.

Value of Extinction Tests in Scarlet Fever.—One hundred and thirty-three scarlet fever cases were studied by Toomey and Nourse and compared with twenty-two control cases in an attempt to evaluate the extinction phenomenon of Schultz-Charlton. They were able to confirm the fact that serum from acute cases of scarlet fever injected intradermally in another case of acute scarlet fever in the exanthematous stage will not cause blanching. Not all serums are similarly potent in producing blanching, few normal serums producing no blanching at all, a fact which limits the application of this test in its negative phase. The injection of normal serum in cases having rashes other than the scarlet fever rash does not cause the reaction. Normal serums give a greater number of reactions than convalescent scarlet fever serum. Normal serums in 1 c.c. amounts give a greater number of positive reactions than normal serums in 0.5 c.c. doses. If the serum is used and produces a definite reaction in one case, it will produce the same reaction in nearly 70 per cent. of other cases tried. If two serums are used which produce definite blanching in a given case, they will complement each other and will give 100 per cent. reactions in other cases tried.

Enterolith in Sigmoid Causes Obstruction.—The case described by Miller and Neff occurred in an infant exclusively breast fed, who had complete obstruction and was operated on at the age of 8 months. Laxatives, including croton oil, were tried, often unsuccessfully, for several days at a time. Under anesthesia, a hard, globular, mobile mass was easily felt in the region of the umbilicus and diagnosed as an enterolith. A stone weighing 40 gm. was removed from the sigmoid.

Healed Miliary Tuberculosis.—Baer's patient, aged 11, had attacks of difficult breathing since he had measles when 1 year old. The lungs were normal on percussion, but a few scattered moist râles could be heard. An intracutaneous injection of tuberculin, 0.1 mg., produced no reaction. A roentgenogram of the chest revealed small opaque areas scattered throughout both lungs, even to the margins. There was no evidence of an accumulation of these areas near the roots of the lungs, and stereoscopic plates showed that the nodules were in the lung substance. The wide and even distribution of the nodules point to a dissemination by the blood stream rather than by the bronchi or lymphatics. The presence of several nodules, presumably calcified, can be accounted for by assuming that the boy at some time, following measles or pneumonia, had an eruption of tubercle bacilli into his blood that caused a number of isolated lesions; but the infection was overcome, as there was no recurrence. Subsequently, calcification of the lesions occurred.

Tuberculosis of Tonsils.—Postoperative observations were made by MacCready and Crowe on fifty patients. Forty have been observed from five to ten years, and ten for at least two years. The impressions gained are that tuberculosis of the tonsil is usually a bovine bacillus infection. When tubercles are found in the tonsil on histologic examination, it is needless to be unduly excited, because the infection is already widespread in the cervical, mediastinal and probably the mesenteric lymph glands. In such cases, removal of the tonsils and adenoids is of value in reducing the secondary infection, but there is no evidence that by operation on the throat one can remove the only tuberculous focus in the body. Tuberculosis of the tonsils or adenoids is never recognizable from the gross appearance before operation unless there are superficial ulcerations secondary to an open pulmonary lesion; and when the lesion is discovered microscopically, it is probably not advisable to alarm the family, stigmatize the patient as tuberculous, or seriously interfere with his ordinary routine duties, since the majority of such patients will probably never have clinical symptoms of the disease.

Milk Is Essential.—Bloch's observations confirm the enormous importance of milk as food for a child. No other article of diet can replace milk. Absence of milk from the diet or the inclusion of improperly modified milk is the origin of most serious diseases. By employing milk, and especially cream and butter, in the diet, not only is xerophthalmia cured, but growth and development are promoted, and the cure of the most prevalent infectious diseases is advanced.

Rickets in Breast Fed Infants.—DeBuys observed 197 babies for twelve months. There was no seasonal peak for any of the individual symptoms. There was, however, a seasonal peak of the combined symptoms of the disease in March. Costal beading was the most frequent symptom. Enlarged epiphyses, cranial bosses, flaring ribs and craniotabes followed in the order named. The short period of the existence of craniotabes, with its rapid increase and abrupt decline, was striking. DeBuys insists that rickets should not be looked on as a disease of the second half of the first year, but as a disease which may begin shortly after birth. There was no noticeable increase in the symptoms of rickets after simple acute illness. There was no apparent relation between the severity of the rickets and the numerical order of the child in a family, or the number of children in a family. Syphilis was noted in only eight instances, as determined by the clinical manifestations of the disease and the Wassermann reaction.

Roundworm Causes Pancreatitis.—The case of acute hemorrhagic pancreatitis reported by Gallie and Brown occurred in a boy, aged 2½ years, and was caused by the invasion of the ampulla of Vater by a roundworm. This allowed a back flow of bile or intestinal juices into the pancreas or created such an irritation of the duodenum that the ampulla became closed by the resulting inflammatory reaction. The symptoms manifested were abdominal pain, shock, vomiting and obstruction besides the pancreatitis and peritonitis. The diagnosis of pancreatitis was confirmed by operation although the worm was not discovered. It was expelled through the mouth about fifteen hours after operation.

American Journal of Roentgenology and Radium Therapy, New York

10: 935-1038 (Dec.) 1923

Ionization Methods of Measuring Roentgen-Ray Dosage. W. Duane, Boston.—p. 935.
Economics of Dosimetry in Radiotherapy. G. Failla and E. H. Quimby, New York.—p. 944.
*Biologic Effects of Roentgen Rays. J. W. Mayor, Schenectady, N. Y.—p. 968.
*Occurrence of Two Heritable Types of Abnormality Among Descendants of Roentgen-Rayed Mice. C. C. Little, Orono, Me., and H. J. Bagg, New York.—p. 975.
Forceps for Cleaning Radium Needles and Tubes. J. S. Ullman, Natchez, Miss.—p. 989.

Biologic Effects of Roentgen Ray.—The experiments made by Mayor show that the roentgen ray affects the distribution of the chromosomes during the maturation of the egg, and that such eggs, although their structure has been altered by the rays, may, nevertheless develop into adult animals and produce offspring. The effect of the rays, consisting in an irregular distribution of the chromosomes, is inherited.

Hereditary Abnormalities Among Roentgen-Rayed Mice.—Little and Bagg recommend extreme caution in the use of radium or roentgenotherapy on persons who are likely to be

parents after they have been so treated because of the bad effect on their offspring. The inherited abnormalities appear to be of the nature of a direct effect on the germ cells themselves, not through the soma as an acquired character.

American Journal of Tropical Medicine, Baltimore

4: 1-112 (Jan.) 1924

*Effect of Magnesium Sulphate, Simultaneously Administered, on Efficacy and Safety of Carbon Tetrachlorid for Removal of Hookworms. M. C. Hall and J. C. Shillinger, Washington, D. C.—p. 1.
*Carbon Tetrachlorid in Uncinariasis. W. W. Cadbury, Canton, China.—p. 13.
Intestinal Protozoa in Seven Hundred and Twenty-Five Cases. J. V. Barrow, Los Angeles, Calif.—p. 23.
*Pentatrichomoniasis in Man. C. A. Kofoid and O. Swezy, Berkeley, Calif.—p. 33.
*Ingestion of Red Blood Corpuscles by Intestinal Ameba with Eight Nucleated Cyst. K. M. Lynch, Dallas, Tex.—p. 43.
*Splenomegaly in Malaria from Epidemiologic Viewpoint. M. F. Boyd.—p. 49.
*Cultivation and Biologic Characters of Leishmania Tropica. I. J. Kligler, Jerusalem.—p. 69.
Life History of Tropical Bedbug, Cimex Rotundatus, in Panama. L. H. Dunn, Ovid, N. Y.—p. 77.
Relation of Micro-Organisms to Development and Longevity of Flies. R. W. Glaser, Princeton, N. J.—p. 85.

Magnesium Sulphate for Hookworms.—The experiments on dogs reported by Hall and Schillinger indicate that the efficiency of carbon tetrachlorid is not impaired by the simultaneous administration of magnesium sulphate.

Carbon Tetrachlorid in Uncinariasis.—Among 172 Cantonese farmers 69 per cent. showed infection with uncinaria. One treatment with 3 c.c. of oil of chenopodium caused a cure in 58 per cent. One treatment with from 3 to 6 c.c. of carbon tetrachlorid caused a cure in only 36.1 per cent.

Pentatrichomoniasis in Man. — *Pentatrichomonas ardindelteili* is a parasitic flagellate of man which engulfs red blood corpuscles. The clinical indication of pathogenicity is a chronic, persistent, continued diarrhea with fetid stools. It resists emetin and the arsenicals. *Pentatrichomonas* survives in liquid stools for twenty-four days, in rain, creek, and tap water for three days, and in salt solution for thirteen days. No cysts have been observed. It is probably spread by drinking water or food contaminated with the motile stage.

Peculiar Variety of Intestinal Ameba.—Lynch describes an intestinal ameba, which is not *Endameba histolytica* but which may be identified as *Endameba coli* by a liberal interpretation of such features as motivity, nuclear construction, thickness of cyst wall, shape of cyst, affinity for stain and character of chromatoidal bodies. It was obtained from a person who had no recognizable harm from it, and it readily ingested red blood corpuscles in the test tube on one occasion but failed to do so on another.

Splenic Index Determines Degree of Malaria.—The splenic index is recognized by Boyd as an aid in determining the degree of malaria prevalence. It gives no information regarding the species of malaria parasites present.

Cultivation of Leishmania Tropica.—Cultivation of the Leishmania of oriental sore in a medium similar to that used by Noguchi for the cultivation of *Leptospira icteroides* is reported by Kligler. Whole blood is used in place of serum, and the agar contains a small amount of dextrose. The medium is prepared by adding 1 part of dextrose agar to 9 parts of saline. The semisolid agar is then tubed and autoclaved. Before use, from 0.3 to 0.5 c.c. of fresh rabbit blood is added to each tube. Cultures were obtained from three cases of oriental sore from three different sources and were kept alive for periods ranging from two and one half to three and one half months. One culture has been carried through eight generations during a period of thirteen months.

Archives of Neurology and Psychiatry, Chicago

2: 113-256 (Feb.) 1924

*Experimental Study of Hyperneurotization. B. Stookey, New York.—p. 113.
*Brain Changes in Typhus Fever Contrasted with Those in Epidemic Encephalitis and Acute Poliomyelitis. G. B. Hassin, Chicago.—p. 121.
*Cerebellar Symptoms Produced by Suprasellar Tumors. P. Bailey, Boston.—p. 137.
Testicular Teratoma with Secondary Deposits in Spinal Column and Meninges. F. Kennedy and L. Stevenson, New York.—p. 151.
*Etiology of Respiratory Arrhythmias Following Epidemic Encephalitis. E. C. Rosenow, Rochester, Minn.—p. 155.
*Sex Development and Behavior in Female Patients with Dementia Praecox. C. E. Gibbs, New York.—p. 179.
Headache and Vertigo in Uricacidemia. W. H. Holmes, Chicago.—p. 195.

Hyperneurotization.—Can muscle having its normal innervation be made to take on an additional and foreign nerve when methods of direct nerve implantation are utilized? For example, can the biceps muscle be innervated by the musculocutaneous and at the same time, by the ulnar nerve? Stookey's experiments show that after implantation of the ulnar nerve into the biceps muscle, still possessing its normal innervation, contraction of the biceps was obtained on stimulation of either the ulnar or the musculocutaneous nerves. Contraction of the biceps occurred on stimulation of the ulnar nerve immediately after the musculocutaneous had been cut and at various intervals thereafter, showing that the stimulation could not be attributed to dispersion of the current from the ulnar fibers in the muscle to the motor end plates of the musculocutaneous but to functional end plates of the ulnar nerve. After cutting the musculocutaneous nerve and before regeneration of the musculocutaneous could take place, normal motor end plates were found by histologic methods which electrical examination showed could be derived only from the implanted ulnar nerve. Thus, both the physiologic findings and the evidence obtained by histologic degenerative methods permit the conclusion that hyperneurotization of normal muscle is possible.

Brain Changes in Typhus.—The changes observed by Hassin in the central nervous system in typhus fever are those of an acute disseminated encephalomyelitis, nonsuppurative in character. The virus is responsible for these changes.

Cerebellar Symptoms Produced by Suprasellar Tumors.—The main source of difficulty in the differential diagnosis between supratentorial and infratentorial tumors lies in the equilibratory disturbance which both may cause. Three cases of suprasellar tumor are described by Bailey which gave rise to symptoms of cerebellar disorder, mainly equilibratory, possibly from interference with the efferent pathways of the cerebellum in the region of the incisura tentorii, or to interruption of cerebrocerebellar connection.

Etiology of Respiratory Arrhythmias Following Encephalitis.—The symptoms in two cases cited by Rosenow followed what appeared to be an influenzal infection; in three cases they followed undoubted attacks of encephalitis; in one, they developed insidiously from no apparent cause; and in one they were coincident with mental strain in a young woman of hysterical tendencies. In most of the patients the condition was gradually growing worse. All of the patients had catarrhal pharyngitis. The teeth were normal. The tonsils had been cleanly removed. The streptococcus with which characteristic symptoms were produced was obtained from the nasopharynx in each instance, and from the tonsils also in one. Of the eighty-three rabbits injected with material containing the streptococcus, sixty-eight died. The symptoms noted were: intermittent hyperpnea, tremor, ataxia, retraction of the head, paralysis, spasms of muscles, turning of the head, nystagmus, rhythmic movements and spasms of abdominal muscles, lethargy, and ticlike movements and spasms of the diaphragm. The characteristic streptococcus was isolated from the brain in fifty-eight and from the blood in twenty-one cases. The symptoms in the animals often resembled in particular respects those noted in the patients from whom the strains were isolated. Similar results were not obtained with material from the nasopharynx of normal persons, nor from patients with other forms of encephalitis.

Sex Development in Dementia Praecox.—Many patients with dementia praecox present a variety of symptoms that are definitely sexual in nature, and various theories have been advanced to explain dementia praecox as essentially a sex disorder, either mental or physical. The observations presented by Gibbs are part of a study of the sex factor from the standpoints of biologic psychology and physiology. The three most definite factors considered have been instinct, emotion and the reproductive function in a physiologic sense.

Boston Medical and Surgical Journal

190: 153-186 (Jan. 31) 1924

Review of Year's Work with Thyroid Disease. F. H. Lahey, Boston.—p. 153.
Spontaneous Rupture of Uterus; Report of Case. R. S. Titus, Boston.—p. 157.
Puerperal Anemia; Two Cases. H. Q. Gallupe and D. O'Hara, Waltham.—p. 161.

190: 188-226 (Feb. 7) 1924

Scientific Treatment of Tuberculosis. H. LoGrasso, Perrysburg, N. Y.—p. 187.
Serologic Treatment of Lobar Pneumonia. E. A. Locke, Boston.—p. 196.
Arthroplasty of Knee Joint. W. R. MacAusland, Boston.—p. 203.

190: 227-272 (Feb. 14) 1924

Adenocystoma of Aberrant Thyroid. H. Binney, Boston.—p. 227.
*Volvulus of Entire Small Intestine. J. B. Wheeler, Burlington, Vt.—p. 230.
*Hyperthyroidism Masked as Heart Disease. S. A. Levine and C. C. Sturgis, Boston.—p. 233.
*Chemical Reaction of Duodenal Contents. C. W. McClure, O. C. Montague and L. L. Campbell, Boston.—p. 237.
Symptoms of Pulmonary Tuberculosis: Origin and Frequency. O. S. Pettingill, Middleton, Mass.—p. 239.
Intrinsic Splint Traction. J. W. White, Boston.—p. 242.
Eventration of Diaphragm: Case Report. P. R. Withington, Milton, Mass.—p. 244.
*Case of Recurrent Impacted Calculus in Deep Urethra. O. D. Phelps, Worcester, Mass.—p. 247.
Toxin-Antitoxin Mixtures. Caution to Physicians. E. R. Kelley, Boston.—p. 248.

Volvulus of Entire Small Intestine.—On opening the peritoneum Wheeler found the small intestine completely collapsed and of light purple color. A hard cord, half an inch in diameter, could be felt extending several inches downward from the region of the diaphragm. The condition was a volvulus of the entire small intestine. The cord was the mesentery, which had been twisted once and a half from right to left. There was no fluid in the peritoneal cavity and no adhesions had formed, so that the volvulus was readily untwisted by turning the whole mass of intestine over once and a half, from left to right. The patient was only 8 years old.

Hyperthyroidism Masked as Heart Disease.—Five patients have been observed by Levine and Sturgis who presented a picture of heart disease and were previously treated as such for a year or two. The occurrence of transient auricular fibrillation first directed attention to hyperthyroidism as the underlying cause of the symptoms, although exophthalmos or appreciable thyroid enlargement was absent in all of them.

Chemical Reaction of Duodenal Contents.—McClure, Montague and Campbell report the results obtained from a study of the degrees of acidity or alkalinity, as determined by the hydrogen ion concentration, and the buffer values determined by electrometric titration of duodenal contents derived from normal persons. The p_H of duodenal contents varied after the ingestion of various food substances. Duodenal contents were acid after the ingestion of the protein and the mixture of food substances, and alkaline after the fat and carbohydrate food substances. No relation was found between the p_H of duodenal contents and the stimulation of the flow of bile and pancreatic juice. The findings indicate that the various types of pure food substances had about the same stimulating effect on the external functions of the liver and pancreas as regards the production of buffer substances.

Recurrent Impacted Calculus in Deep Urethra.—The calculus in Phelps' case was firmly imbedded in the prostatic urethra and protruded into the bladder, almost completely stopping the urinary flow.

Florida Medical Association Journal, St. Augustine and Jacksonville

10: 155-182 (Dec.) 1923

Endarteritis Obliterans. F. J. Waas, Jacksonville.—p. 155.
Endocervicitis. L. S. Oppenheimer, Tampa.—p. 161.
Report of 346 Cases of Appendicitis. E. Jelks, Jacksonville.—p. 162.
Mechanics of Pelvic Repair. T. S. Field, Jacksonville.—p. 164.
Dermatitis Venenata. J. L. Kirby-Smith, Jacksonville.—p. 168.
Importance of Bronchoscopy. W. J. Knauer, Jacksonville.—p. 171.

10: 183-210 (Jan.) 1924

Intravenous Glucose Therapy. T. Truelsen, Tampa.—p. 183.
Complications of Nonpenetrating Traumatism of Thorax. E. W. Bitzer, Tampa.—p. 186.
Insulin in Treatment of Diabetes Mellitus. W. C. Blake, Tampa.—p. 188.
Bilateral Juvenile Cataract. S. A. Richardson, Jacksonville.—p. 191.
Appendicitis. E. H. McRae, Tampa.—p. 192.
Anaphylaxis and Surgeon. G. E. W. Hardy, Tampa.—p. 195.
Treatment of Intestinal Obstruction. E. H. Teeter, Jacksonville.—p. 201.

Iowa State Medical Society Journal, Des Moines

14: 45-96 (Feb. 10) 1924

Use of Roengen-Ray in Gynecology. M. E. Hanks, Chicago.—p. 45.
Acute Mastoiditis. C. B. Taylor, Ottumwa.—p. 50.
Pyelitis of Pregnancy. F. H. Falls, Iowa City.—p. 53.
Tuberculous Peritonitis: Treatment. L. C. Kern, Waverly.—p. 58.
Status of Present Day Obstetrics. E. C. Hartman, Algona.—p. 64.
*Value of Iodin in Exophthalmic Goiter. H. S. Plummer and W. M. Boothby, Rochester, Minn.—p. 66.
Chronic Fatigue Intoxication. E. H. Ochsner, Chicago.—p. 73.
Intestinal Obstruction. G. M. Crabb, Mason City.—p. 77.
History of Medicine in Iowa. Insane Hospitals. D. S. Fairchild, Clinton.—p. 80.
Psychiatrists of Iowa. G. H. Hill, Des Moines.—p. 80.

Value of Iodin in Exophthalmic Goiter.—Compound solution of iodin (Lugol's solution) was used by Plummer and Boothby in their work. Ten drops daily, well diluted with water, and followed by half a glass of water, was, on the average, the optimal dose. If there is a critical gastro-intestinal or mental crisis, this amount is given three or four times a day for a few days, and then reduced to once a day. If the drug is not tolerated by mouth, it is given in similar doses by rectum; rectal administration, however, has been found necessary only for a few days for patients who had severe gastro-intestinal crisis, and constant nausea and vomiting. As soon as the vomiting was controlled, the solution was given by mouth. About 600 patients having exophthalmic goiter have so far been treated. No patient with unquestioned exophthalmic goiter has been made worse. Approximately two thirds of the number of patients were greatly benefited; one fourth were slightly benefited; the remainder, or about one patient in twenty, was not demonstrably benefited. The probability of the iodin doing harm is less than 1 in 600.

Journal of Biological Chemistry, Baltimore

58: 643-987 (Jan.) 1924

Direct Determination of Secondary Phosphate. I. N. Kugelmass and C. Rothwell, New Haven, Conn.—p. 643.
Determination of Equilibria Involving Calcium, Hydrogen, Carbonate, Bicarbonate, and Primary, Secondary, and Tertiary Phosphate Ions. I. N. Kugelmass and A. T. Shohl, New Haven, Conn.—p. 649.
Estimation of Hydrogen Cyanid Content of Amygdalin by Aeration Method. J. H. Roe, Washington, D. C.—p. 667.
Absorption of Metallic Salts by Fish in Their Natural Habitat. II. Absorption of Nickel by Fundulus Heteroclitus. A. Thomas, Detroit.—p. 671.
Modification of Isaacs' Colorimetric Determination of Blood Chlorids. M. Dupray, Hutchinson, Kan.—p. 675.
*Dietary Requirements for Reproduction. I. Nutritive Value of Milk Proteins from Standpoint of Reproduction. B. Sure, Fayetteville, Ark.—p. 681.
*Id. II. Existence of Specific Vitamin for Reproduction. B. Sure, Fayetteville, Ark.—p. 693.
*Excretion of Ammonia and Nitrogen. R. S. Hubbard, Clifton Springs, N. Y.—p. 711.
Changes in Composition of Blood Due to Injection of Insulin. A. P. Briggs and I. Koechig, St. Louis.—p. 721.
Chemical Reactions of Substance Containing Insulin. H. A. Shonle and J. H. Waldo, Indianapolis.—p. 731.
Isolation and Identification of Rutin from Flowers of Elder (Sambucus Canadensis L.). C. E. Sando and J. U. Lloyd, Cincinnati.—p. 737.
Carbon Dioxid Absorption Curve of Human Blood. IV. Relation of Hemoglobin Content of Blood to Form of Carbon Dioxid Absorption Curve. J. P. Peters, Harold A. Bulger and Anna J. Eisenman, New Haven, Conn.—p. 747.
Id. V. Construction of Carbon Dioxid Absorption Curve from One Observed Point. J. P. Peters, H. A. Bulger and A. J. Eisenman, New Haven, Conn.—p. 769.
Id. VI. Relationship of Carbon Dioxid of Blood to That of Plasma. J. P. Peters, H. A. Bulger and A. J. Eisenman, New Haven, Conn.—p. 773.
Specificity of Intracellular Hydrogenases in Frog's Muscle. M. E. Collett, Lund, Sweden.—p. 793.
Action of Hydrazine and Some of Its Derivatives in Producing Liver Injury as Measured by Effect on Levulose Tolerance. M. Bodansky, Galveston, Tex.—p. 799.
Rates of Reduction and Oxidation of Blood. A. E. Koehler, Madison, Wis.—p. 813.
Presence of Vernine (Guanosine) in Green Leaves and Berries of Coffee Tree (Coffea Arabica L.) and Its Relation to Origin of Caffein in This Plant. T. de A. Camargo, Sao Paulo, Brazil.—p. 831.
Effect of Hematoporphyrin on Deposition of Calcium in Bones of Rachitic Rats. E. C. van Leersum, Amsterdam, Holland.—p. 835.

*Amino-Acid Content of Blood in Normal and Pathologic Conditions. C. H. Greene, K. Sandiford and H. Ross, Rochester, Minn.—p. 845.
II. Isolation and Properties of Lysolecithins and Lysocephalins. P. A. Levene, I. P. Rolf and H. S. Simms, New York.—p. 859.
*Method of Determining Biologic Value of Protein. H. H. Mitchell, Urbana, Ill.—p. 873.
Biologic Value of Proteins at Different Levels of Intake. H. H. Mitchell, Urbana, Ill.—p. 905.
Supplementary Relations Among Proteins. H. H. Mitchell, Urbana, Ill.—p. 923.
Clinical Calorimetry. XXXIV. Ketosis and Respiratory Exchange in Diabetes. H. B. Richardson and W. S. Ladd, New York.—p. 931.

Dietary Requirements for Reproduction.—From experimental data Sure concludes that lack of fertility or significant success in rearing of young on milk diets must be attributed to a dietary factor other than protein, the fat soluble A vitamin, the antirachitic vitamin, or the water soluble B vitamin.

New Vitamin E Influences Reproduction.—Sure is convinced that, in addition to the antixerophthalmic, antirachitic, antiberiberi and antiscorbutic vitamin, there exists another, hitherto unrecognized, vitamin that is essential for reproduction, which becomes evident only in breeding experiments in which rations composed of purified food substances are employed. This reproductive vitamin has been found to occur in Georgia velvet bean pod meal, polished rice, yellow corn and rolled oats. If the term "D" be accepted for the designation of the antirachitic factor, it is proposed that the term "E" be adopted to represent this new dietary factor that influences reproduction.

Excretion of Ammonia and Nitrogen.—Hubbard's results confirm, in general, his previous findings and those of Munford on the excretion of ammonia by normal human subjects.

Amino-Acid Content of Blood in Health and Disease.—The amount of amino-nitrogen in the blood varies between 4.8 and 7.8 mg. in 100 c.c., the average amount being 6.3 mg. This was found by Greene, Sandiford and Ross to be true in normal persons, and in a series of more than 400 observations covering twenty pathologic conditions. The level of amino-nitrogen may be increased by flooding the organism with amino-acids arising during digestion or from the rapid autolysis of body tissue, as has been noted in leukemia and acute yellow atrophy of the liver. In general, the quantity in the blood is maintained within the limits mentioned with remarkable constancy. Such conditions as uremia, diabetes, exophthalmic goiter, or hepatic insufficiency are not exceptions to this rule. The constancy of this regulation in the presence of severe metabolic disturbances is direct evidence of the widespread and fundamental nature of the deamination processes in the body.

Determination of Biologic Values of Protein.—The method described by Mitchell is based on nitrogen balance data obtained under definite experimental conditions, and involves direct determinations of the amount of nitrogen in the feces and in the urine and indirect determinations of the fractions of the fecal nitrogen and of the urinary nitrogen that were of dietary origin.

Journal of Bone and Joint Surgery, Boston

6: 3-230 (Jan.) 1924

*Fifty-Nine Cases of Scoliosis Treated by Fusion Operation. R. A. Hibbs, New York.—p. 3.
*Spontaneous Recovery of Congenital Dislocation of Hip. H. C. Slomann, Copenhagen.—p. 38.
*Operation for After-Treatment of Some Cases of Congenital Club Foot. E. S. Geist, Minneapolis.—p. 50.
*Case of Snapping Shoulder. W. R. Bristow, London, Eng.—p. 53.
*Evolution of Longitudinal Arch of Human Foot. D. J. Morton, Milford, Conn.—p. 56.
Apophysitis of Os Calcis. Two Cases. N. Allison, Boston.—p. 91.
*Results of Treatment Following Compound Occurring in Civil Life. R. J. Cook, New Haven.—p. 95.
*Constructive Therapy of Bone and Joint Tuberculosis. R. P. Schwartz, Perrysburg, N. Y.—p. 133.
Etiology and Treatment of Claw Foot. C. P. Mills, Birmingham, Eng.—p. 142.
*Separation of Quadriceps from Patella. Report of Two Cases. I. Zadek, New York.—p. 159.
*Proposed Modified Fusion Operation on Spine. P. Lewin, Chicago.—p. 162.
Arm-Chest Adhesions. J. S. Davis, Baltimore, Md.—p. 167.
Treatment of Fractures from Industrial Standpoint. E. W. Ryerson, Chicago.—p. 188.
Review of Treatment of Infantile Paralysis After Acute Stage. A. T. Legg.—p. 194.

Results of Fusion Operation for Scoliosis.—A review of fifty-nine cases has convinced Hibbs that fusion prevents the progress of the deformity of scoliosis in cases caused by muscle imbalance. The operation should be done before gross deformity has developed. After fusion the upright posture is maintained with greater ease and trunk movement exercised with less fatigue. Only two patients in this series died, one from lobar pneumonia four days after operation, the other from acidosis. From six to sixteen vertebrae were fused. In five cases, secondary operations were done to extend the area of fusion, too few vertebrae having been included in the primary operation. There was one case of infection in the operative wound. All but one case healed by first intention. In all but one case, the patients have shown conspicuous relief from fatigue and a very unmistakable improvement in general health. In 48.8 per cent. the end results were considered excellent. Good results were obtained in 35.5 per cent. In 8.8 per cent. the result was fair. There were poor results in 6.6 per cent., due to paralysis of the entire musculature, with severe thoracic deformity which could not be corrected.

Spontaneous Recovery of Congenital Dislocation of Hip.—Slomann reports two cases of congenital subluxatio coxae in which recovery has been spontaneous, without any external interference. Only twelve cases of this sort are on record. Slomann is convinced that it must be a primary shrinking of the capsule that is the main factor in the spontaneous recovery.

Treatment of Congenital Club Foot.—The object of Geist's operation is, to "untwist" the tibia. The operation consists of a transverse, subperiosteal osteotomy of the tibia at about its middle third. The fibula is not divided. After the tibia has been cut transversely, the foot is rotated outwardly to any desired degree, and may be thus held by means of a plaster cast which extends from the toes to the groin, with the knee flexed. The cast is worn from eight to ten weeks.

Snapping Shoulder.—Bristow found in his case that muscular fibers took origin, from the outer side of the short head of the biceps and run downward and outward toward the long head. This fleshy muscle rode over the lesser tuberosity and caused the snapping sound. Bristow removed that part of the muscle which could come into contact with the lesser tuberosity, about 1 inch, and with it strip of the tendon of the short head, to which it was attached. Recovery was uneventful and the operation, so far, has cured the disability.

Evolution of Human Foot.—Morton's study of the human foot has strengthened his belief that the foot of man was evolved from a grasping, arboreal type such as is peculiar to modern great apes, and makes more convincing Darwin's conclusion in placing man's origin in the ancestral great ape stem. The erect posture is an extremely ancient character, developed by arboreal life. It was retained by the early human representative as the position of choice, from the very beginning of his terrestrial life, because the previous arboreal use of it had become firmly established by structural adaptations and modifications of his nervous system. The human foot is a specialized organ for leverage in bipedal locomotion. The longitudinal arch is absolutely not a modification of the previous supinated posture of the arboreal foot, for had that posture been retained the outer border of the foot would have become hypertrophied as the weight-bearing portion, and the inner border would have become atrophied because it had been held in an unusable position.

Results of Treatment of Compound Fractures.—In the cases of débridement and primary suture treated successfully, Cook says, the time of healing averaged twenty-two days; in those cases treated successfully by aseptic occlusion the wounds were healed in an average of 62 days; those cases which healed following drainage with no subsequent operation did so on an average of 117 days; the cases treated by the Carrel-Dakin method healed in an average of 130 days. The time which the patient must spend in the hospital is shortest under the method of débridement and suture, when successfully done. Next in order, in respect to time, is the method of primary occlusion, and next, the Carrel-Dakin technic.

Treatment of Tuberculous Joints.—Schwartz gives reasons why tuberculous joints should not be rigidly immobilized during the entire time required for healing. Immobilization is indicated in the presence of pain, swelling, and muscle spasm. However, as these symptoms subside, immobilization should be gradually discontinued and graduated active exercises should be instituted. Treatment of the local manifestations becomes most effective when it mobilizes the patient's resistance against the systemic infection which preceded the local lesion. Such a therapeutic agent is available in heliotherapy. Surgical measures may be indicated to improve function subsequent to healing of the tuberculous lesion.

Separation of Quadriceps from Patella.—In both of Zadek's cases there was a history suggestive of underlying weakness. The first patient sustained several injuries to the knee, each somewhat more disabling than the preceding, until the last, which was fairly complete. The second patient had sustained a similar injury to the left knee eleven years previously.

Fusion Operation on Spine.—The operation proposed by Lewin is a combination of the fusion operation of Hibbs and the osteoperiosteal graft proposed by Ollier and executed by Delagénière.

Journal of Laboratory and Clinical Medicine, St. Louis

9: 217-288 (Jan.) 1924

*Can Variations in Ventricular Systole Be Determined from Electrocardiogram Deflections? E. Bartos and J. Burstein, Cleveland.—p. 217.

*Heart Block with Unusual Number of Cardiac Mechanisms. G. K. Fenn, Chicago Heights, Ill.—p. 229.

Colorimetric Determination of Hydrogen Ion Concentration of Small Amounts of Fluid. J. H. Brown, Princeton, N. J.—p. 239.

Germicidal Assays with Particular Reference to Colloidal Silver Compounds; Neosilvol. H. C. Hamilton, Detroit.—p. 244.

*Pharmacology of Sodium Citrate. II. Movements of Stomach and Intestines. G. R. Love, Chicago.—p. 249.

*Organic Protein and Colloidal Silver Compounds. II. Their Antiseptic Efficiency in Body Fluids Rich in Cells and Protein (Defibrinated Blood). J. D. Pilcher and T. Sollmann, Cleveland.—p. 256.

*Estimation of Amount of Pancreatic Enzymes in Duodenal Fluid by Modified Gaultier's Method. G. F. Spencer, Atlantic City, N. J.—p. 261.

*Rapid Method for Determination of Urine Sugars. G. W. Pucher, Buffalo, N. Y.—p. 268.

Method of Measuring Salivary Secretions in Human Beings. C. P. Richter and T. Wada, Baltimore.—p. 271.

*Staining of Treponema Pallidum in Dry Smears. R. Gilbert and H. A. Bartels, Albany, N. Y.—p. 273.

Automatic Pressure Injection Apparatus for Use in Local Anesthesia. B. Douglas, New Haven, Conn.—p. 275.

Study of Kolmer's Complement-Fixation Test for Syphilis. L. O. Dutton and J. M. Thompson, Memphis, Tenn.—p. 279.

Determination of Variations in Ventricular Systole.—In comparing electrical and mechanical systoles in different animals and men, Bartos and Burstein found that the electrical systole (Q to end of T) is longer than the mechanical systole by a variable and undeterminable interval. In man the error is from 3 to 5 per cent. These differences are not due to variations in the Q R S interval, but to inherent variations in the S-T interval. In comparing the changes in electrical and mechanical systoles during altered conditions of the circulation, it was found that usually the two changed in the same direction, but only rarely to equal degree. This was shown to be true (*a*) when the heart was slowed or accelerated; (*b*) when the arterial resistance increased, and (*c*) when venous return augmented. The authors conclude that waves of the electrocardiogram can be used as an index of ventricular systole only when no great degree of accuracy is required.

Many Cardiac Mechanisms in Heart Block.—The cardiac mechanism in Fenn's case varied greatly from day to day. There were noted (1) complete auriculoventricular dissociation—all ventricular complexes, save one, the result of auricular activity; (2) auricular flutter; (3) a transition from 3 to 2 block to complete dissociation with a period of 2 to 1 block lying between, and (4) auricular fibrillation. Until the patient's death the auricle continued to fibrillate. The functional capacity of the conducting tissue varied from day to day. At times the ventricular rate was very slow. On such occasions some of the ventricular complexes were of supraventricular origin, which others escaped from different points in the ventricle itself.

Action of Sodium Citrate on Stomach and Intestines.—According to Love, small doses of sodium citrate intravenously cause a feeble stimulation of the stomach and intestines of dogs. Large doses (100 mg. per kilogram in 10 per cent. solution), injected rapidly, cause a temporary depression of the stomach and intestines. The large doses stimulate the sympathetic nerves, the action corresponding to that of epinephrin.

Influence of Blood on Antiseptic Efficacy of Silver Compounds.—The influence of blood on the antiseptic action of silver compounds was studied by Pilcher and Sollmann; the blood being intended to represent the conditions of secretions or fluids rich in proteins and cells, such as pus or wound secretions. It was found these interfere with all classes of silver compounds. For the inorganic silver salts, the interference of blood is less than that of physiologic solution of sodium chlorid; and for the silver-protein compounds, it is considerably more.

Enzyme Activity of Duodenal Fluid.—Spencer regards the Leuders-Bergein method as an accurate, simple, rapid, yet inexpensive method for determining the amount of enzyme activity in duodenal fluid. This method will aid the surgeon and the internist in making a more accurate diagnosis of diseases of the pancreas and disorders of the gastro-intestinal tract. Spencer states there is no selective action of the enzymes; that the enzymes are not stimulated to the same extent following the ingestion of any one particular kind of food; and that each enzyme having a more or less definite action is secreted in greater abundance when it has a greater amount of work to do.

Determination of Urine Sugars.—With Lloyd's reagent, Pucher was able to determine rapidly urine sugars by the Myer-Benedict colorimetric method. The results agreed with those obtained by the Benedict titration procedure.

Staining the Spirochete.—Of twelve simple stains for spirochetes in dry smears tested by Gilbert and Bartels, Fontana's method gave the best results. It was positive in 80 per cent. of twenty-five smears. The morphology of the spirochete in smears fixed after four days did not differ from that of spirochetes in smears fixed immediately.

Journal of Radiology, Omaha

5: 1-35 (Jan.) 1924

Dental Roentgenography Shadow Values. W. A. Laurie, New Orleans.—p. 1.

Benign Bone Cysts (Osteitis Fibrosa) of Upper End of Femur. J. C. Bloodgood, Baltimore.—p. 3.

Operation of Roentgen-Ray Tubes at High Voltage. W. D. Collidge and C. N. Moore, Schenectady, N. Y.—p. 9.

Roentgen Rays and Roentgen Ray Apparatus; Elementary Course. J. K. Robertson, Kingston, Canada.—p. 12.

Roentgen-Ray in Various Forms of Infection. W. D. Witherbee, New York.—p. 18.

Kentucky Medical Journal, Bowling Green

22: 31-52 (Feb.) 1924

Carcinoma of Testis: Carcinoma of Urinary Bladder: Case Reports. C. W. Jefferson, Louisville.—p. 36.

Clark County Medicos and World War. S. J. Ross, Winchester.—p. 38.

Case of Scleroderma. B. W. Bayless, Louisville.—p. 39.

Bilateral Paralysis of Fifth Cranial Nerve: Case Report. J. J. Moren, Louisville.—p. 40.

Syphilitic Meningitis: Report of Case. E. E. Butler, Louisville.—p. 40.

Salivary Calculus, Wharton's Duct: Case Report. K. D. Winter, Louisville.—p. 48.

Military Surgeon, Washington, D. C.

54: 129-256 (Feb.) 1924

Principles of Evacuation. I. Comprehensive Plan. T. L. Rhoads.—p. 129.

Hygiene of Shelters and Water Supply in Defensive Battles. D. A. Waldmann.—p. 149.

Tissue Diagnosis. J. F. Coupal, R. E. Scott and R. W. French.—p. 166.

Training of Medical Student for Service in Time of War. G. I. Jones.—p. 176.

Modern Viewpoint in Cardiovascular Examinations. W. C. Munley.—p. 195.

Case of Chloroma of Sacrum. J. R. Darnall.—p. 212.

Hydrochloric X Sicca: Parathyroid Preparation for Intramuscular Injection. A. M. Hanson.—p. 218.

Treatment of Head Injuries, Colon Hospital, C. Z. T. S. Mebane.—p. 220.

New Jersey Medical Society Journal, Orange

21: 43-74 (Feb.) 924

Undernourished or Subnormal Child. S. Chayes, Bayonne.—p. 43.
Blood Transfusion. M. L. James, New York.—p. 47.
Early Diagnosis of Pulmonary Tuberculosis. W. H. Fairbanks, Freehold.—p. 50.
Neurasthenic Abdomen. W. E. Darnell, Atlantic City.—p. 53.
Anorexia In Early Childhood. F. H. von Hofe, South Orange.—p. 55.
Antibody Relationship of Members of Streptococcus-Bacillus Coli Groups. J. F. Anderson and E. B. Ellinger, New Brunswick.—p. 56.
*Untoward Results of Intravenous Injection of Sodium Iodid. L. Isacson, Sioux City, Ia.—p. 58.

Untoward Results Following Intravenous Injection of Sodium Iodid.—In a case of gonorrheal epididymitis Isacson injected 15 grains of sodium iodid intravenously. The following morning the upper left eyelid was markedly swollen, and the salivary glands were enlarged. The patient experienced difficulty in opening his mouth, owing to extreme pain. On both hands and forearms there was an extensive, erythema tous, papular dermatitis, with subjective symptoms of itching and burning; later some serous exudation appeared on the left forearm. He complained of violent headache, nausea, chills and vomiting. He was confined to bed. Isacson believes that the symptoms were the result of the mode of administration, and were not due to any idiosyncrasy, as prior to such injection, tincture of iodin was applied to the skin and no reaction was observed. Subsequently, the patient took 2 grains of sodium iodid by mouth, with no outward effects.

New Orleans Medical and Surgical Journal

76: 355-408 (Feb.) 1924

Scope and Indications of Myomectomy in Fibroids of Uterus. C. J. Miller, New Orleans.—p. 355.
Deafness and Its Prevention. W. T. Patton, New Orleans.—p. 359.
Osteomyelitis. U. Maes, New Orleans.—p. 365.
Value to General Practitioner of Roentgen-Ray Examination of Stomach and Duodenum. A. Henriques, New Orleans.—p. 368.
Full Term Abdominal Pregnancy; Case. L. A. Ledoux, New Orleans.—p. 371.
Appreciation of Some Modern Methods in Diagnosis and Treatment of Syphilis. F. J. Chalaron, New Orleans.—p. 373.
Sickle Cell Anemia (Report of Case). S. C. Jamison, New Orleans.—p. 378.
Practical Application of High Voltage Roentgen Rays. S. C. Barrow, Shreveport.—p. 379.
One Hundred Anesthesias with Ethylene Gas. E. E. Allgeyer, New Orleans.—p. 383.

New York State Journal of Medicine, New York

24: 101-146 (Feb. 8) 1924

*Sterility in Male. J. S. Read, Brooklyn.—p. 101.
Diagnosis of Sterility. E. Reynolds and D. Macomber, Boston.—p. 104.
Besetting and Other Morbid Fears. T. A. Williams, Washington, D. C.—p. 109.
*Brain Abscess of Otitic Origin. W. Sharpe, New York.—p. 112.
Acidosis, A Faulty Diagnosis. D. H. Sherman and H. R. Lohnes, Buffalo.—p. 117.

Cause of Sterility in Men.—Of 253 specimens of spermatic fluid examined by Read only 34 per cent. were normal. Complete azoospermia was present in about one third of the abnormal fluids and partial azoospermia in the remaining two thirds. Inflammation due to gonorrhea was the most frequent cause of azoospermia, being present in ninety-four of the 167 abnormal fluid cases.

Mortality of Brain Abscess.—According to Sharpe's observations the mortality of true brain abscess is apparently 100 per cent. without operation and over 50 per cent. with operative drainage.

Ohio State Medical Journal, Columbus

20: 73-136 (Feb.) 1923

Tuberculosis of Kidney. E. O. Schwartz, Cincinnati.—p. 77.
Puerperal Sepsis. J. G. Smailes, Coshocton.—p. 84.
Nonspecific Protein Therapy. C. DeCourcy, Cincinnati.—p. 86.
Relation of Eyestrain to Industrial Efficiency. F. H. Cook, Akron.—p. 89.
Modern Garbage Disposal. G. D. Lummis, Middletown.—p. 92.
*Chemical Changes in Blood and Spinal Fluid in Acute Alcoholism. A. D. Finlayson and L. J. Karnosh, Cleveland.—p. 94.

Blood and Spinal Fluid in Acute Alcoholism.—In seven cases of acute alcoholism the urea, uric acid, creatin, sugar and chlorid content of the blood and spinal fluid of each were estimated by Finlayson and Karnosh. No constant relation was found between the same constituents in the blood and spinal fluid nor was there any parallelism between the physical and mental states, on the one hand, and the changes in the chemistry of the blood and spinal fluid, on the other.

Southern Medical Journal, Birmingham, Ala.

17: 75-144 (Feb.) 1924

Lesions of Colon Treated Surgically. E. S. Judd, Rochester, Minn.—p. 75.
*Surgery of Knee Joint. W. C. Campbell, Memphis, Tenn.—p. 82.
Treatment of Joint Injuries. J. S. Stone, Boston.—p. 87.
Postnatal Care. B. G. Hamilton, Kansas City.—p. 92.
Roentgen Ray Aid in Acute Abdomen. D. Y. Keith, Louisville, Ky.—p. 98.
*Relation of Cardiovascular Disease to Symptoms in Abdomen. J. A. Lichty, Clifton Springs, N. Y.—p. 102.
*Etiology of Dengue Fever. C. W. Duval and W. H. Harris, New Orleans.—p. 106.
Who Is Repsonsible for Drug Addict. W. G. Somerville, Memphis.—p. 108.
Dermatology in South. J. B. Shelmire, Dallas, Tex.—p. 112.
Aleukemic Leukemia. W. B. Hunter, Huntington, W. Va.—p. 114.
Brain Abscess and Hernia Following Sinusitis. W. P. Cornell, Columbia, S. C.—p. 116.
*Intraspinous Injections of Sodium Iodid in General Paralysis. G. B. Lawson, Roanoke, Va.—p. 117.
Disposal of Garbage as Practised in City of Panama, Republic of Panama. H. Goldthwaite, Panama, R. P.—p. 118.
Benefits to South If All Her States Were Accepted Into Birth and Death Registration Areas of Bureau of Census. W. H. Davis, Washington, D. C.—p. 121.
Persistent Infantile Ethmosphenoidal Sinuses. J. J. Shea, Memphis, Tenn.—p. 124.
*Parenteral Injections of Milk in Therapeutics of Eye Diseases. T. W. Moore, Huntington, W. Va.—p. 130.
Progress of Medical Education. M. L. Graves, Galveston, Tex.—p. 134.
Army Medical Corps. M. W. Ireland, Washington, D. C.—p. 139.

Surgery of Knee Joint.—Campbell warns that the utmost conservatism should be practiced in the treatment of joints. The actual percentage of knee affections requiring open operations, is exceedingly small. When indications demand, there should be no hesitation to enter the knee joint with the proper facilities, not only for a definite purpose but also for exploration. When motion is limited, as a sequence to operation, it is due to preexisting destructive changes and extensive excision of pathologic tissues involving joint structures. In well selected cases, surgery of the knee joint will benefit the individual, and will add knowledge of joint diseases by correlating clinical symptoms and concomitant gross and microscopic pathology.

Cardiovascular Disease and Abdominal Symptoms.—Lichty says that abdominal symptoms should not be interpreted until a searching examination of the cardiovascular system has been made. The physical findings in the examination of the abdomen are not infrequently evidence of circulatory disturbance.

Etiology of Dengue Fever.—The experiments made by Duval and Harris are based on the use of material from sixteen typical human cases of dengue and on the inoculation of many guinea-pigs. Of the 215 animals used for the initial transmission, eighty-seven, representing ten human cases, reacted in a characteristic manner. The reaction occasioned in these animals by which inoculations closely resembled the symptoms in human cases, differing only in the absence of exanthems. The primary pyrexia following regularly after a definite incubation period of three to five days, the secondary rise in temperature after a twenty-four to thirty-six hour remission ("saddle-back" curve), and the concomitant fall in the circulating leukocytes present a syndrome identical with that of the human disease. In the experimentally induced infection in guinea-pigs by inoculation of dengue virus there occurs a rather constant and characteristic gross alteration of the lymph tissues, and of the spleen especially, which is often enlarged to three to four times the normal size. The deep lymph glands, particularly those of the mediastinum and peritoneal cavity, are often enlarged. For certain reacting pigs that recover from the infection from ten days to two weeks after inoculation, reinfection has not been possible within three months, although many times the infective dose of virus for the susceptible animal has been injected.

Sodium Iodid in General Paralysis.—Three patients showing clinically advanced general paralysis were treated by Lawson by sodium iodid given intraspinously. The blood and spinal fluid of all of these patients gave positive Wasser-

manns. The spinal fluid of all three showed a high cell count and increased globulin. These three patients were also thoroughly treated with neo-arsphenamin and mercury in the usual manner. All three patients improved clinically.

Parenteral Injections of Milk in Eye Diseases.—Moore is convinced that in the majority of diseases of the anterior segment of the eyeball milk injections are an addition to therapy, usually relieving pain and causing a rapid subsidence of symptoms of inflammation. His experience has been altogether with milk of a bacterial count varying from 50,000 to 90,000.

Texas State Journal of Medicine, Fort Worth

19: 361-416 (Nov.) 1923

Cancer Problem in Texas. I. L. McGlasson, San Antonio.—p. 369.
Cancer Propaganda and Results. S. J. Wilson, Fort Worth.—p. 373.
Sarcoma of Long Bones. C. H. Harris, Fort Worth.—p. 374.
*Papillary Carcinoma of Kidney. M. S. Seely, Dallas.—p. 377.
Neurogenetic Tumors of Retina and Optic Nerve; Glioma. T. L. Terry, Galveston.—p. 379.
Present Status of High Voltage Roentgen Rays. R. H. Millwee, Dallas.—p. 382.
Radiation in Cancer of Breast. A. U. Desjardins, Rochester, Minn.—p. 384.
Fractional-Dose Method in Roentgen-Ray Treatment of Skin Malignancies. J. M. Martin, Dallas.—p. 391.
Treatment of Acne With Roentgen Ray. E. D. Crutchfield, Galveston.—p. 395.
Rôle of Radium in Gynecology. W. W. McCuistion, Paris.—p. 397.
*The Necropsy A Specific for Conceit. S. E. Thompson, Kerrville.—p. 398.
Importance of Postmortem Examinations. W. W. Waite, El Paso.—p. 400.
Clinical Pathology. A. H. Braden, Houston.—p. 403.

Papillary Carcinoma of Kidney.—Pain in the left side of the abdomen, hematuria, frequent urination, and the passing of a small stone from the bladder led to removal of the left kidney in Seely's case. A small papillary carcinoma was found in the upper part of the pelvis.

Clinical Diagnosis and Necropsies.—Thompson reports a case of carcinoma of the left lung, with metastases in the right lung, in which diagnoses of neuritis, pleurisy, rheumatism and tuberculosis had been made by various physicians who saw the patient in the course of two years preceding her death. Thompson's diagnosis of malignancy of the lung was confirmed at necropsy.

19: 417-470 (Dec.) 1923

Diagnosis of Early Clinical Tuberculosis. C. M. Hendricks, El Paso.—p. 428.
*Relation of Trauma to Pulmonary Tuberculosis. W. C. Farmer, San Antonio.—p. 432.
Tubercle Bacilli Not Stainable by Ziehl as Aid in Early Diagnosis of Pulmonary Tuberculosis — Much Granule. H. L. Wilder, Clarendon.—p. 435.
Influenza in Children. W. B. Reeves, Greenville.—p. 437.
Prevention and Treatment of Diphtheria. L. Rice, Galveston.—p. 439.
Common Lesions of Knee Joint. H. R. Dudgeon, Waco.—p. 442.
Internal Derangements of Knee Joint. C. F. Clayton, Fort Worth.—p. 446.
Fractures About Elbow. C. S. Venable, San Antonio.—p. 452.
Fracture of Femur. R. Trigg, Fort Worth.—p. 455.
Bone Surgery. R. E. B. Bledsoe, Taylor.—p. 458.

Relation of Trauma to Tuberculosis.—Farmer has seen a number of cases in which active pulmonary tuberculosis apparently resulted from trauma. A young man, apparently well, with a negative history, struck his right chest, over the fourth rib, on the corner of his desk. Traumatic pleurisy followed, which subsided in a few days. In about eight weeks the patient began having a temperature of from 99 to 100 F., with a slight cough. In about four months from the date of the accident tubercle bacilli were found in the sputum. The clinical course in this case seemed to point definitely to the accident as the cause of the active disease.

West Virginia Medical Journal, Huntington

19: 57-112 (Feb.) 1924

Preoperative and Postoperative Treatment of Enlarged Prostate. W. A. Frontz, Baltimore.—p. 57.
Physicians Rôle in American's Right to Life. C. R. Ogden, Clarksburg.—p. 65.
Vertigo. M. F. C. Zuback, Wheeling.—p. 72.
Acute Hemorrhagic Pancreatitis. T. E. Vass, Bluefield.—p. 80.
Unusual Urologic Problems. R. M. Bobbitt, Huntington.—p. 84.
Accidents and Reactions Following Use of Arsenicals in Treatment of Syphilis. L. G. Beinhauer.—p. 87.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

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British Journal of Surgery, London

11: 405-604 (Jan.) 1924

Eponyms. XI. Bell's Palsy. D'Arcy Power.—p. 405.
*Operation Shock. J. Fraser.—p. 410.
*Four Cases of Intestinal Obstruction Due to Accumulation of Large Numbers of Round Worms. J. J. Levin and A. Porter.—p. 432.
Aseptic Intestinal Anastomosis: Colectomy. J. Fraser and N. M. Dott.—p. 439.
Origin and Nature of Hernia. A. Keith.—p. 455.
*Acute Pancreatitis. Sixteen Cases. H. J. Waring and H. E. Griffiths.—p. 476.
Fracture of Femur. R. H. Russell.—p. 491.
*Relative Frequency of Various Positions of Vermiform Appendix: Analysis of 3,000 Cases. R. J. Gladstone and C. P. G. Wakeley.—p. 503.
Surgery of Pituitary Gland. P. Sargent.—p. 521.
Transplantation of Tensor Fasciae Femoris in Paralysis of Quadriceps Muscle. N. Dunn and F. W. Stuart.—p. 533.
Remote Results of Operations for Injuries of Peripheral Nerves. H. Platt and W. R. Bristow.—p. 535.
Temporary Extra-Abdominal Intestinal Anastomosis Through Tube. D. P. D. Wilkie.—p. 568.

Operation Shock.—Fraser urges that operation in a case showing persistent low blood pressure should be delayed, if possible, until means have been taken to raise the blood pressure. The operative procedure should be as short as is consistent with thoroughness. The operation should be carried out with the least possible interference and trauma, and every effort made to avoid unnecessary loss of blood. Chilling of the patient before, during, or after the operation must be avoided. If possible to exercise a choice of anesthetic, nitrous oxid and oxygen should be chosen. If simple restorative measures have failed to raise the blood pressure before operation, it ought to be raised by the intravenous infusion of human blood or of 1 pint of 6 per cent. gum-acacia solution in physiologic sodium chlorid solution. If the examination of the blood shows that a condition of acidosis is present before operation, a reserve of alkali should be built up by the intravenous infusion of 1 pint of 4 per cent. solution of sodium bicarbonate.

Intestinal Obstruction Caused by Ascaris.—In one of four cases reported by Levin and Porter the worms were not counted. In the three other cases, respectively, 809, 268 and 990 ascarids were removed.

Acute Pancreatitis.—All of Waring's and Griffiths' patients were over 40. Abdominal pain was present in each case; pain, in eleven cases; vomiting, in thirteen; cyanosis, in nine; jaundice, in seven. Fat necrosis was present in all of the cases. Eight patients recovered.

Classification of Positions of Appendix.—Gladstone and Wakeley offer the following classification of positions of the appendix: anterior or preileal; splenic or postileal; pelvic on psoas muscle, near or hanging over the brim of the pelvis; subcecal, beneath the caput cecí; postcecal and retrocolic; ectopic. Among 3,000 cases examined, 825 were pelvic and 2,076 were postcecal and retrocolic.

British Journal of Tuberculosis, London

18: 1-42 (Jan.) 1924

Swiss Health Stations for Consumptives and Other Tuberculous Subjects: Davos. T. N. Kelynack.—p. 1.
Characteristics of High Alpine Climate and Cure at Davos. E. C. Neumann.—p. 3.
Characterists of High Altitude Climate and Treatment at Arosa. O. Amrein.—p. 14.
Use of Roentgen-Ray in Differential Diagnosis of Pulmonary Tuberculosis. H. L. Sampson.—p. 20.

British Medical Journal, London

1: 139-178 (Jan. 26) 1924

*Treatment of Gastric Ulcer. C. Bolton.—p. 139.
*Chronic Intestinal Stasis. W. A. Lane.—p. 142.
*Case of Retropharyngeal Lipoma. R. Woods.—p. 144.
*Hippocratic Fingers. D. Campbell.—p. 145.
*Types of Dextrocardia. H. W. Jones.—p. 147.
Case of Spinal Compression Localized Radiographically by Sicard's Method. R. N. Ironside and C. D. Shapland.—p. 149.

Gallstones. J. L. Stretton.—p. 149.
*Treatment of Acne Vulgaris. J. A. Scott.—p. 150.
*Mucous Polyp of Uterus Causing Postpartum Hemorrhage. F. A. Nyulasy.—p. 150.

Treatment of Gastric Ulcer.—The so-called Sippy neutralization treatment of gastric ulcer is criticized by Bolton for the reasons that (1) the gastric juice is put out of action and digestion stopped; (2) this amount of neutralization is quite unnecessary, since free hydrochloric acid below 0.1 per cent. does no material damage, certainly not enough to delay the healing of an ulcer, and (3) according to Hardt and Rivers this excessive and constant giving of alkalis in some people produces symptoms of intoxication. Bolton criticizes the Lenhartz diet treatment on the ground (1) that it is wrong to endeavor to neutralize all the free acid by giving excess of protein, which simply increases the secretion according to the amount given and the time it remains in the stomach. (2) It is much better to give meals at stated times such as the patient has been accustomed to, and to neutralize the hydrochloric acid by alkalis about one and a half to two hours after each meal, as occurs naturally. (3) It is wrong to feed a bleeding patient, because the blood clot which is closing the artery is easily dislodged by the movements of the stomach and by the vasomotor dilatation consequent on the ingestion of food.

Chronic Intestinal Stasis.—Lane says, to prevent the development of chronic intestinal stasis, a complete revolution in diet and habits is needed. The diet should consist as much as possible of vegetable matter; it should be consumed largely in a raw state to avoid damage to vitamins; coarse indigestible material should be retained to increase the bulk of the intestinal contents and the stimulating action on the reflexes. The free use of liquid petrolatum is essential. As to the treatment of the existing condition, apart from medical measures, all operative measures on any portion of the gastro-intestinal tract should start by an examination of the last kink, and the careful freeing of the bowel from its acquired attachment to the iliac fossa. Lane reports that, in his experience, this procedure has been followed by the most satisfactory improvement in the patient's condition.

Retropharyngeal Lipoma.—The chief complaint in Woods' case was "phlegm in the throat." For twenty years the patient, aged 41, had not swallowed freely; food had to be taken in small quantities, slowly and with frequent sipping. The voice had the characteristic twang associated with retropharyngeal abscess or tumor. For months breathing had not been free. The back wall of the pharynx was sharply bulged forward at the level of the base of the tongue, so as to come in contact with the epiglottis and prevent inspection of the larynx. The tumor could be reached by the forefinger. It was soft, but gave no impression of fluctuation. A roentgenogram showed that a tumor lay in front of the vertebral column, behind the pharynx and upper portion of the gullet, separating these structures by a distance of at least an inch. A tumor, bigger than a man's fist was removed under intratracheal anesthesia.

Hippocratic Fingers.—The case reported by Campbell presented the usual features of pulmonary hypertrophic osteoarthropathy arising from a malignant growth (endothelioma) in the left lung. There is an interesting point in the history. After the finger tips had become markedly swollen, the swelling receded considerably for nearly four weeks, then returned. Campbell compared the microscopic appearances of a longitudinal section through the tip of one of the clubbed fingers of this patient with those of a section through a normal finger. It appears that the primary pathologic basis of all cases of clubbing is edema of the tissues, especially those lying between the nail and the bone. Campbell attempts to show that clubbing is the result of defective oxidation in the tissues of the extremities whether produced mechanically by obstruction to venous return, or as the result of a general lowering of the oxygen tension of the blood affecting parts of the body where normally the circulation is slow.

Dextrocardia.—Of the four cases of dextrocardia cited by Jones, two belong to the transposition group and two to the acquired variety.

Treatment of Acne Vulgaris.—Scott has not found that dieting exerts much influence on this disease, except in young girls, who feed on sweets to the exclusion of almost any other food. Generally speaking, excess of carbohydrates in the diet is bad; fruit and green vegetables are good. He prescribes a rhubarb and sulphur cathartic and three warm baths a week of twenty minutes each, in which should be dissolved from 15 to 30 gm. of zinc sulphate, according to the tolerance of the skin. In addition, the patient should apply the following lotion to the affected parts night and morning: sulphur precipitate, from 0.5 to 1.25 gm.; zinc oxid, 0.5 gm.; powdered camphor, 1.33 gm.; tragacanth, 0.125 gm.; lime water, 240 gm. The sulphur should be increased according to the tolerance of the skin, with a break occasionally if necessary.

Mucous Polyp of Uterus Causes Postpartum Hemorrhage.—On the eighth day after a normal labor, Nyulasy's patient was seized with alarming hemorrhage. The hemorrhage was ultimately arrested, but three weeks later it returned. It ceased in a few days, but another severe hemorrhage prompted an operation. A small growth, not larger than a filbert, was found at the very top of the fundus of the uterus and removed. No more hemorrhages occurred.

Journal of Obstetrics and Gynæcology of British Empire, Manchester

30: 507-714 (No. 4) 1923

*Nonprotein Nitrogen and Uric Acid in Blood in Vomiting of Pregnancy. V. J. Harding and K. Drew.—p. 507.
*Influence of Pregnancy on Wassermann Reaction and on Clinical Manifestations of Syphilis. F. J. Browne.—p. 519.
*Toxemias of Pregnancy as They Occur in Glasgow. I. Incidence and Mortality (Indoor Cases). J. N. Cruickshank.—p. 541.
Roentgenographic Pelvimetry. W. R. Mackenzie.—p. 556.
Innervation of Uterus. B. Whitehouse and H. Featherstone.—p. 565.
Bacillus Coli Infections of Urinary Tract: Presence of Similar Organisms in Feces. F. Bawtree.—p. 578.
*New Method of Determining Patency of Fallopian Tubes: Sterility Due to Their Obstruction. G. S. Currier, New York.—p. 586.
*Treatment of Puerperal Sepsis. S. G. Luker.—p. 592.
Instruments Left in Peritoneal Cavity; Analysis of Forty-Four Cases. C. White.—p. 601.
Development and Structure of Human Placenta. G. I. Strachan.—p. 611.
Uterus Inversion Caused by Squamous Cell Carcinoma of Fundus. H. Williamson and G. F. Abercrombie.—p. 643.
Case of Ovarian Pregnancy. J. H. Martin and D. McIntyre.—p. 647.

Blood in Vomiting of Pregnancy.—Twenty cases were examined by Harding and Drew. In mild cases, nonprotein nitrogen and uric acid values were normal, in more severe cases they were increased. The increased values observed in the severer cases return to normal by administration of fluids sufficient to produce "diuresis." Improvement in the clinical condition accompanies "diuresis." Cases of such severity as to require therapeutic abortion did not show extreme raised values. Two cases, in which treatment failed to produce "diuresis" and clinical improvement, did not show prompt recovery after abortion. The chlorid content of blood in vomiting of pregnancy is normal or lowered. It usually increased on recovery.

Influence of Pregnancy on Wassermann Reaction.—A study by Browne of the Wassermann reaction in 100 cases of syphilis during pregnancy suggests that pregnancy has little or no influence in modifying the Wassermann reaction. The Wassermann reaction on the blood from the umbilical cord is a reliable means of diagnosis of syphilis in the child. The reaction differs but little from that of the mother's blood, but, on the whole, tends to be less strongly positive than the latter. It is suggested that this may be due to the fact that it is purified (arterial) blood obtained from the umbilical vein.

Incidence of Various Toxemias of Pregnancy.—The incidence of the various toxemias of pregnancy was investigated by Cruickshank in 23,630 cases. There was an average incidence of hyperemesis gravidarum of 1.21 per cent. The average incidence of albuminuria and nephritis was 2.84 per cent. The group of cases included under preeclamptic toxemia comprised, on the average, 0.15 per cent. of all cases admitted. Eclampsia was present on the average, in 3.6 per cent. of cases, but the incidence varied in different years from 2.8 per cent. to 6.1 per cent. Of the 814 cases of eclampsia, fits

occurred antepartum or intrapartum in 78.5 per cent., while in the remaining 21.5 per cent. the fits were postpartum. Sixty-five and one-tenth per cent. of the cases of eclampsia occurred in primigravidae and 34.9 per cent. in multiparae. There was a distinct tendency for eclampsia to occur in the older primigravidae, but the influence of advanced age was much more marked in multiparae, though the degree of multiparity had little relation to the frequency of the condition. The maternal mortality varied from 15.6 per cent. to 31.6 per cent., with an average of 22.4 per cent. The average death rate from antepartum and intrapartum eclampsia was 23.4 per cent., and from postpartum eclampsia 18.2 per cent. In 689 pregnancies in eclamptic women, 34.1 per cent. ended in the birth of a living mature child, 12.6 per cent. ended in the birth of a living premature child, and 36.6 per cent. ended in stillbirth (17.2 per cent. mature and 19.4 per cent. premature). Of the other 115 cases, twenty resulted in abortion and ninety-five were dismissed undelivered. Of the 322 children born alive of eclamptic mothers, 27 per cent. died within ten or fourteen days of birth (17 per cent. mature and 54 per cent. premature). The death rate for unselected live births was 8.4 per cent.

Determining Patency of Fallopian Tubes.—Currier has devised a portable outfit which injects carbon dioxid.

Treatment of Puerperal Sepsis.—Luker injects antistreptococcal serum on each of the first three days of the disease or on the first day the patient comes under observation, even though the disease has been in progress several days, and gives intravenous injections of quinin bihydrochlorid, on the fourth, sixth and eighth days of the disease and intramuscular injections of quinin bihydrochlorid on the fifth, seventh, ninth, tenth, eleventh and twelfth days of the disease.

Glasgow Medical Journal

101: 1-51 (Jan.) 1924

Diets and Economic Conditions of Artisan Families in Glasgow in May, 1923. A. M. T. Tully.—p. 1.
Pyelography. W. W. Galbraith.—p. 14.
Pel-Ebstein Pyrexia; Involvement of Central Nervous System. O. H. Mavor.—p. 23.
Practical Points in Administration of Ether. H. P. Fairlie.—p. 32.

Journal of Laryngology and Otology, Edinburgh

39: 57-116 (Feb.) 1924

Evolution of Nasal Cavities and Sinuses in Relation to Function. J. F. O'Malley.—p. 57.
Method of Total Removal of Inferior Turbinated Bone. O. Strandberg.—p. 65.
Operative Treatment of Cancer of Larynx. J. E. Mackenty, New York.—p. 67.
*Fourteen Cases of Intrinsic Cancer of Larynx. J. S. Fraser and D. Watson.—p. 79.

Intrinsic Cancer of Larynx.—Fraser and Watson regard thyrotomy as a suitable operation for the cure of cancer of the larynx in a comparatively small group of cases. Patients having marked arteriosclerosis, chronic pulmonary affections or syphilis should not be operated on. Thyrotomy is only indicated when the growth on the vocal cord is a limited one, i. e., if it does not transgress the anterior commissure or reach the vocal process, and if the cord itself is fairly movable.

Journal of Tropical Medicine and Hygiene, London

27: 13-24 (Jan. 15) 1924

Medical Conditions in Transcaucasia. P. Popoff.—p. 13.
Rickettsia Rochalimae (Nov. Spec.). R. Weigl.—p. 14.

Lancet, London

1: 215-266 (Feb. 2) 1924

*Hypertrophic Pyloric Stenosis. F. J. Poynton, J. T. Higgins and J. M. Brydson.—p. 215.
*New Methods for Study of Pathology and Treatment of Tuberculous Disease. A. E. Wright.—p. 218.
*New Method of Preparing Vaccines. R. Zivy.—p. 221.
Foot-and-Mouth Disease in Rats. J. M. Beattie and D. Peden.—p. 221.
*Steinach's Rejuvenation Operation. K. M. Walker and J. A. L. Cook.—p. 223.
After-Results of Abdominal Operation for Retroversion. A. Bloomfield.—p. 227.

Hypertrophic Pyloric Stenosis.—When the diagnosis has been made, operate at the earliest opportunity. This is the view held by Poynton, Higgins and Brydson with respect to the treatment of this condition. They have had twenty cases, sixteen of which have been cured; four died. Three died from shock, mainly the result of their previous condition, and one died from an intercurrent diphtheroid infection. This latter child had symptoms of stenosis practically from birth, that is, for at least 100 days. The operation of choice is Rammstedt's.

Treatment of Tuberculosis.—Before any substantial improvements can be made in the treatment of tuberculous infection, Wright says, two things must be done: (1) extend immunologic knowledge so as to discern what is lacking in the patient, and what should be done for him; (2) when treatment has been selected, a sure means for discovering whether therapeutic procedures fulfil their purpose must be used. The proper way to begin will be to find out whether the infective agent can cultivate itself in the blood, in the blood fluids, and in the blood fluids in the presence of leukocytes. Wright discusses hemoculture in slide cells and capillary tubes; plasma culture; influence exerted by leukocytes on the growth of the tubercle bacillus, and the effect of implanting the tubercle bacilli into the blood of phthisical patients.

Freezing Bacteria to Prepare Vaccine.—Instead of killing bacteria by exposure to heat Zivy freezes them.

Steinach's Operation.—Walker and Cook are of the opinion that at present there is insufficient material to make a decision as to the value of vasoligature as a means of tratment in man. The results of the operation appear to have been capricious, although numerous cases are reported in which benefits accrued. As, however, the data on which the claims rest are inexact and incapable of measurement, a large number of observations will be necessary before a final verdict as to the precise value of this treatment can be rendered.

National Medical Journal of China, Shanghai

9: 265-357 (Dec.) 1923

Serodiagnosis of Syphilis. L. An.—p. 265.
Pellagra in Shanghai. E. S. Tyau.—p. 272.
Case of Pellagra in Wuhu. S. C. Wu.—p. 280.
Health Center Movement in China. V. B. Appleton.—p. 284.
Medical Art in Relation to Modern Views in Psychotherapy. A. Bary.—p. 286.
Recent Advances in Cancer Research. A. C. Selmon.—p. 293.
Review of Treatment of Tuberculosis. P. Y. Chang.—p. 297.
Significance of Abdominal Pain. V. S. Nyi.—p. 304.
Recent Advances in Local Anesthesia. K. Chow.—p. 307.
Treatment of Pulmonary Tuberculosis. E. S. Tyau.—p. 311.
Liver Abscess: One Hundred Operations. A. I. Ludlow.—p. 319.
Domestic Cat Infested with Clonorchis Sinensis. D. W. Chen.—p. 334.

Practitioner, London

112: 69-136 (Feb.) 1924

Medicolegal Pitfalls. J. Collie.—p. 69.
Diabetic "Neuritis." R. T. Williamson.—p. 85.
Treatment of Consumption by Artificial Pneumothorax. H. B. Shaw.—p. 99.
Recent Public Health Work. J. Priestly.—p. 109.
Transfusion of Blood and Injection of Medicated Liquors as Practised in 1656. G. A. Stephens.—p. 121.
Bronchial Asthma: Autogenous Vaccine Treatment. A. E. Rouse.—p. 126.

South African Medical Record, Cape Town

22: 1-20 (Jan. 12) 1924

Diseased Conditions in Cerebellopontin Angle. J. Luckhoff.—p. 2.
Twin Delivery: Rupture of Uterus; Natural Recovery. W. A. Carden.—p. 7.

Bulletins de la Société Médicale des Hôpitaux, Paris

48: 63-94 (Jan. 25) 1924

Treatment of Epidemic Meningitis. C. Achard et al.—p. 63.
Abortive Malta Fever. d'Oelsnitz, G. Degroote and F. Pin.—p. 67.
*Blood Dilution in Gout. Laporte and Rouzaud.—p. 70.
The Disappearance of Chlorosis. Roch and G. Bickel.—p. 76.
Serotherapy of Pulmonary Gangrene. Trabaud.—p. 78.
Paralysis of Ulnar Nerve in Infant. Variot et al.—p. 82.
Mental Confusion in Azotemic Nephritis. P. Merklen et al.—p. 86.
*Hiccup of Long Duration. G. Guillain et al.—p. 89.
Leontiasis of Bones. E. de Massary and J. Rachet.—p. 91.

Blood Dilution in Gout.—Laporte and Rouzaud measured the blood viscosity in patients with gout, taking it as a measure of the hydremia, since high viscosity indicates inspissation of the blood. They found that the attacks of gout are always accompanied by low viscosity (hydremia).

If mineral waters are prescribed in treatment, this will provoke an attack unless the blood viscosity is high. Therefore the treatment of the attack of gout should aim to induce inspissation of the blood (dry food, laxatives). They point to the parallelism between the uric acid concentration of the plasma (not of the whole blood) and the hydremia.

Hiccup of Long Duration.—Guillain, Alajouanine and Mathieu describe a case of hiccup of fifteen months' duration. There were no other pathologic findings. The cerebrospinal fluid was normal, but the hiccup stopped for twenty-four hours after lumbar puncture.

Comptes Rendus de la Société de Biologie, Paris

90: 59-160 (Jan. 25) 1924

*Trypsin and Bacteriophage. E. Wollman.—p. 59.
*Radium Treatment of Tumors. B. Sokoloff and C. Weckowski.—p. 60.
Bone Marrow and Bone Disease. E. Feullié.—p. 62.
*Experimental Rickets. E. Feuillié.—p. 64.
Intrinsic and Residual Energy of Tissues. A. Carrel.—p. 66.
*Bioradioactivity and Entropy. H. Zwaardemaker.—p. 68.
Action of Glycerin on Rabies Virus. P. Remlinger.—p. 70.
Submucous Anthrax Injection. A. Boquet.—p. 72.
Filtration of Tuberculous Pus. J. Valtis.—p. 74.
*Antigens and Antibodies in Herpes Zoster. A. Netter et al.—p. 75.
Medium for Weeks' Bacillus. P. Durand.—p. 77.
Virus of Duhring's Dermatosis. P. Poincloux.—p. 79.
*Paradoxic Thoughts on Puberty. C. Champy.—p. 81.
Microdetermination of PH. C. Sannié.—p. 84.
*Anticoagulating Phosphorus Compounds. M. Doyon.—p. 85.
Hematoxylin Staining. C. L. Faure.—p. 87.
Research on Isolated Head. C. Heymans and P. Regniers.—p. 89.
Bulbar Anemia and Respiratory Automatism. Heymans and Ladon.—p. 93.
*Spontaneous Appearance of Lysins in Cultures. J. Bordet.—p. 96.
*Blood Calcium Deficiency in Epileptics. E. J. Bigwood.—p. 98.
Reaction of Venous Blood. E. J. Bigwood.—p. 100.
*Ion Absorption by Vegetable Pulps. J. Effront.—p. 103.
*Vegetables and Reactions of Digestive Fluids. J. Effront.—p. 106.
*Autolysis by Antagonism. P. Fabry and J. van Beneden.—p. 109.
Antilytic and Anti-Antilytic Serum. Idem.—p. 111.
Cocain and Bathmotropy. R. C. Cousy.—p. 114.
Action of Blood on Unstriped Muscles. V. G. Brabant.—p. 115.
Colloidal Silver and Surface Tension of Plasma. E. Zunz and J. La Barre.—p. 118.
*Cholin and Blood Coagulation. E. Zunz and J. La Barre.—p. 121.
*Xanthin and Vegetative System. E. Louis Backman.—p. 125.
*Veratrin Action and Alkali Ions. E. Louis Backman.—p. 128.
Experimental Research with Xanthin Compounds. Sahlström.—p. 131.
Diagnosis of Occult Bleeding. V. Ciocalteu.—p. 135.
*Experimental Recurring Herpes. Nicolau and Banciu.—p. 138.
Ascending Hemianesthesia in Rabies. V. Babes and Jonesco.—p. 144.
*Duration of Anaphylaxis. Zolog.—p. 146.
Injections Into Plants. G. Nicolau.—p. 148.
Cholesterolemia and Endocrines. C. J. and M. Parhon.—p. 150.
Cholesterolemia in Peptone Shock. Garofeano and Dérévici.—p. 153.
Drinking Flies. V. Nitzulescu.—p. 155.
Elimination of Cocobacillus of Fowl Cholera. I. Cernaianu.—p. 157.

Trypsin and Bacteriophage.—Wollman destroyed bacteriophages by the action of trypsin.

Radium Treatment of Tumors.—Sokoloff and Weckowski observed in cancer patients a diminution of lymphocytes and erythrocytes after large doses of radium. They consider this as a drawback of the method as it lowers the resistance of the patient against metastasis.

Experimental Rickets Induced by Anaphylactic Shocks.—Feuillié produced a condition resembling rickets by repeated humoral shocks with milk, serum, peptone and other substances.

Bioradioactivity and Entropy.—Zwaardemaker believes that the radioactivity of potassium is the real source of energy for the automatism of living organisms. Otherwise the impulses for these processes would be a *perpetuum mobile*, having no entropy. The potassium present in the human body furnishes daily an actual energy of 0.022 erg.

Antigens and Antibodies in Herpes Zoster.—Netter, Urbain and Weismann-Netter used the contents and crusts of the vesicles of herpes zoster as antigen. They demonstrated the presence of complement-fixing antibodies in the serum of the patients for eight and nine months. The maximum was between the sixteenth and twentieth day.

Paradoxic Thoughts on Puberty.—Champy has no use for the term puberty as applied to signify a beginning of some new action of a hormone. The development of sex characters is continuous, and only its velocity increases as soon as the dimensions of the body reach a certain degree.

Anticoagulating Phosphorus Compounds.—Doyon claims the priority of discovery of the inhibiting action of nucleinic acids on blood coagulation. Using Howel's recent technic, he found such an action in extracts from all organs.

Spontaneous Appearance of Lysins in Cultures.—Bordet cultivated for eight months four pure strains of colon bacilli which did not have primarily any lytic property. After this time, three of the cultures contained bacteriophages against Shiga bacilli.

Blood Calcium Deficiency in Epileptics.—Bigwood examined the blood in thirty-five epileptics. He observed an analogy with tetany: alkalosis and lowered concentration of blood calcium. The patients had no attacks, in spite of the alkalosis, if the blood calcium was normal.

Action of Vegetable Pulp.—Effront crushed vegetables into a paste and expressed all the juice. Then he washed them well with cold or boiling water and expressed it. There are differences in the absorbing power between the pulps extracted with cold or boiling water and those which are wet, or dried at 80 C. The pulp of carrots and cauliflower thus prepared absorbed acids and alkali with avidity. In the digestive tract they contribute to the regulation of the reaction of the contents.

Autolysis by Antagonism.—Fabry and van Beneden withdraw their theory explaining the lysis obtained when two nonlytic cultures are put together. Their previous belief was that the bacteriophage is freed from one microbe in the presence of the other, which is lysable. Now they believe that it is adsorbed to or is present in the lysable microbe. The presence of the other microbe would contribute only an adjuvant for its appearance.

Cholin and Blood Coagulation.—Zunz and La Barre investigated the anticoagulating property of cholin and its derivatives. It inhibits the formation of thrombin, but not its action.

Xanthin Compounds and the Vegetative System.—Backman's experiments indicate that salts of caffein and theobromin act not only on the muscles but also on the terminal organs of the sympathetic nervous system.

Veratrin Action and Alkali Ions.—Backman has investigated the significance of pôtassium and calcium ions for the action of veratrin on the intestine and uterus.

Experimental Recurring Herpes.—Nicolau and Banciu inoculated virus from a recurring genital herpes on the arm of a woman previously free from herpes. Since this time she has had several recurrences in the neighborhood of the inoculated spot.

Duration of Anaphylaxis.—Zolog believes that the anaphylactic reaction against foreign blood corpuscles takes place in the blood stream. Guinea-pigs react only in the first two months after sensitization with blood corpuscles.

Journal de Médecine de Lyon

5: 29-52 (Jan. 20) 1924

*Acetosoluble Proteins in Urine. J. Teissier.—p. 29.
Digestive Albuminuria. A. Cade and P. Ravault.—p. 35.

Acetosoluble Proteins in Urine.—Teissier deals with the significance of the urinary protein which precipitates after boiling, but dissolves after addition of very little acetic acid. It precipitates with sulphosalicylic or nitric acids. It is frequent in the urine from patients with syphilitic and malarial nephritis. It seems to be caused by derangement of the liver, and it indicates a disturbance of cleavage of body proteins. The prognosis depends on the condition of the liver. Sodium sulphate and alkalis are indicated.

Médecine, Paris

5: 243-318 (Jan.) 1924, and Supplement

French Ophthalmology in 1923. A. Cantonnet.—p. 243.
*Diagnosis of Glaucoma. A. Chevallereau.—p. 247.
*Toxic Amblyopia. F. Terrien.—p. 249.
Glioma of the Retina. A. Monthus.—p. 253.
*Cartilage as Base for Artificial Eye. Magitot.—p. 254.
Plastic Dacryocystorhinostomy. A. Hudson and P. Jeandelize.—p. 256.
Visual Disturbances in Brain Injuries. M. Worms.—p. 260.
*Detachment of the Retina. Joltrois.—p. 261.
Phlegmon of the Orbit. L. Chenet.—p. 262.

Arteries of the Optic Tract. A. Monbrun.—p. 266.
*Intra-Ocular Foreign Bodies. Aubaret.—p. 268.
*Radical Treatment of Simple Lacrimation. de Saint-Martin.—p. 272.
Treatment of Follicular Conjunctivitis. Bourdier.—p. 274.
*Visual By-Effects of Quinin. J. Bollack.—p. 278.
Otorhinolaryngology in 1923. L. Baldenweck.—p. 282.
*Chronic Maxillary Sinusitis. G. Worms.—p. 289.
*Choanal Obstruction of Nose. E. Halphen.—p. 294.
*Thrombosis of Internal Jugular Vein. J. Rouget.—p. 299.
*Malignant Tumors of the Ethmoid. H. Chatellier.—p. 301.
*Chancre of the Tonsil. J. Ramadier.—p. 306.
Treatment of Otitic Meningitis. L. Dufourmentel.—p. 311.
*Furunculosis of External Ear. L. Leroux.—p. 313.
Tracheotomy in Adults. P. Cazejust.—p. 317.
The Newer Cardiac Drugs. P. Ribierre. Supplement.—pp. 1-32.

Diagnosis of Glaucoma.—Chevallereau deplores the frequent omissions in careful examination of the eye. A glaucoma is mistaken for iritis, although the pupil is dilated, and is fatally maltreated with atropin. The history of the patient, the hardness of the eye and the behavior of the pupil should make the diagnosis easy. Chronic glaucoma with the greenish background of the eye seen through the dilated pupil and progressive diminution of the acuity of vision and of the nasal field as the only subjective signs, misleads to diagnosis of a beginning cataract, and to the advice to wait before consulting the specialist until the cataract is ripe—and vision is lost. Iridectomy or miotics in time might have prevented this.

Toxic Amblyopia.—Terrien considers a central scotoma as sufficient evidence of toxic amblyopia (especially from nicotin and alcohol). The central vision is best tested with a small piece of white paper, about 2 to 3 mm. square, painted green on the other side. Vision is centered on the white paper, which is then turned. In severe cases not only the green and red colors are not recognized, but not even the white paper.

Cartilage as Base for Movable Ocular Prosthesis.—Magitot implants in the orbit after enucleation a piece of cartilage which had been preserved in formaldehyd. The tissues unite with it, and it gives a movable hold for the prosthesis. It was perfectly tolerated in his patients.

Detachment of the Retina.—Joltrois surveys the instances in which the ocular tension is high in spite of detachment of the retina. The most important cause of such a syndrome is a tumor of the choroid. The detached retina does not fluctuate, and the detached part does not descend secondarily if the tumor is in the upper portion. Glaucoma, exudative choroiditis, and choroid and retinal hemorrhages are other causes.

Intra-Ocular Foreign Bodies.—Aubaret makes a roentgen examination in every case of injury of the eye by splinters, even if nothing seems to speak for the presence of an intra-ocular foreign body. The simultaneous application of an electromagnet allows the detection and extraction of iron particles. If they are deeply situated, electromagnetic needles help more than a large apparatus. The treatment has to be applied as early as possible. In case of foreign bodies that are not iron, we are practically helpless. They may remain without reaction, but the ocular tension has to be tested for months before this can be affirmed. Iridocyclitis develops in the majority of patients, and exenteration of the eyeball will become necessary at last.

Radical Treatment of Simple Lacrimation.—Instead of catheterizing the lacrimal ducts, Saint-Martin removes a part of the lacrimal gland in noninfected cases.

Visual By-Effects of Quinin.—Bollack is cautious in forecasting the outcome in quinin amaurosis. Even if it disappears, there remains very often a marked narrowing of the field of vision which makes orientation in space difficult. The ocular disturbances appear after doses of from 2.4 to 3.6 gm. Some subjects are less tolerant. The disturbance starts a few hours after the intake, and reaches its maximum after seven to nine hours. The blindness may be complete. The pupils are dilated, do not react, and the arteries of the retina are contracted. Some patients recover; others only partially or not at all. In partial recoveries, central vision is regained, but the peripheral part remains less sensitive.

Chronic Maxillary Sinusitis.—Worms reviews the signs of chronic catarrh of the maxillary sinus. The diagnosis is easy in typical cases with unilateral rhinorrhea, nasal obstruction and subjective cacosmia. Pain is not always present. Milder affections are more difficult to detect, unless the physician thinks of the possibility and applies diaphanoscopy and roentgen rays. Nevertheless the mild disease is important because of the possibility of eye complications and infections of remote organs. Involvement of the adjoining sinuses is the rule, and this does not heal until the maxillary sinusitis is cured. Infected molar and premolar teeth are the most frequent cause. Repeated influenzal infections of the nose range as second.

Choanal Obstruction of Nose.—Halphen deals with obstruction of the nose due to affections of the posterior nares. A congenital imperforation is most dangerous, for it prevents suckling. If it is bilateral in adolescents, it may be of congenital origin. In adults, it may be a sequela of a gumma. An incomplete bilateral obstruction may be caused by hypertrophy of a turbinate. Gummas, sarcoma, and fibroids cause an incomplete unilateral obstruction. The nasal fossa then is full of mucus and pus which accumulate. Injection of water demonstrates the impermeability. Cocainization relieves temporarily the obstruction from hypertrophied turbinates. Sarcoma causes pains and epistaxis.

Thrombosis of Internal Jugular Vein.—Rouget shows the difficulties in diagnosis of thrombophlebitis of the gulf of the jugular vein. A chill, followed by high fever and sweating, in the course of a suppurative otitis, with all the general signs of a severe infection are usually present. The local signs are less evident, especially the disturbances from pressure on the nerves. Surgical exploration is frequently the only safe way to diagnose the condition.

Malignant Tumors of the Ethmoid.—Chatellier advises to think of malignant tumors of the ethmoid bone in repeated epistaxis.

Chancre of the Tonsil.—Ramadier points to the various aspects of a chancre of the tonsil. In all its forms it remains unilateral and limited to the tonsil, which is enlarged and hard. The regional lymph glands are enlarged. It lasts from four to six weeks. Therefore it is necessary to think of syphilis in every sore throat of long duration.

Furunculosis of External Ear.—Leroux warns against the use of lavages in furuncles of the external auditory meatus. Only hot dressings and daily introduction of a wick of gauze soaked with alcohol is the advisable treatment. Vaccine therapy is also good to alleviate the pain and to prevent recurrences.

Presse Médicale, Paris

32: 89-100 (Jan. 30) 1924

*Onset of General Paralysis. H. Claude et al.—p. 89.
*Epileptic or Hysteric Seizure? M. Chavigny.—p. 92.
Roentgenography of Intracranial Tumors. Delherm and Morel-Kahn.—p. 93.

Presymptomatic Phase of General Paralysis.—Claude, Targowla and Santenoise cite several instances in which the diagnosis of a beginning progressive paralysis was supported exclusively by the examination of the spinal fluid. In every other respect the condition may resemble neurasthenia, melancholia, or other psychosis.

Epileptic or Hysteric Seizure?—Chavigny emphasizes the advisability in hysteric attacks to banish all spectators. The physician should approach the head of the patient (the only part with which the patient cannot kick or strike) and pour water on his face or flap it vigorously with a wet towel. The only words used should be: "Are you nearly through?" In institutions, every attack should be followed by at least four days of absolute isolation, explained as a rest cure.

32: 101-112 (Feb. 2) 1924

*Beginnings of Human Tuberculosis. R. Debré and L. Laplane.—p. 101.
*Infectious Horse Anemia in Man. J. T. Peters.—p. 105.
American Methods for Diagnosis of Impermeability of Tubes. A. Laquerrière and R. Lehmann.—p. 106.

Beginnings of Human Tuberculosis.—Debré and Laplane investigated in fifteen infants the first signs of tuberculous infection. The incubation period was between two weeks and four months—depending on the amount of bacilli with which they were contaminated by the parents. The beginning is by no means silent; fever, loss in weight, digestive disturbances,

and cough are followed by the appearance of physical and radiographic signs. These disturbances last only for some days, but reappear in a few days or weeks—rarely months—and the tuberculosis takes its course which is not necessarily fatal.

Infectious Horse Anemia in Man.—Peters describes a case of severe anemia of the aplastic type in a veterinary physician who had been treating horses affected with infectious anemia. One c.c. of the blood of the patient killed a horse. Filtrates were also active. The disease started with diarrhea, alternating with constipation, occult bleeding and an exanthema. After two years the patient felt better but even now (after six years) the number of leukocytes is only 1,800 per c.mm. and the hemoglobin index is somewhat above normal.

Progrès Médical, Paris

49-64 (Jan. 26) 1924

Pathologic Anatomy of the Sympathetic. Laignel-Lavastine.—p. 49.
*Hungarian Phthisiology. O. Kuthy.—p. 52.
*Contusions of the Abdomen. G. Audain.—p. 54.

Hungarian Phthisiology.—Kuthy recalls his sign of dissociation between bronchophony and a lowered pectoral fremitus. It indicates an infiltration of the lung under a thickened pleura.

Contusions of the Abdomen.—Audain points to the possibility of apparently good condition of the patient in severe injuries of the abdominal organs. It is too late to operate when peritonitis has set in. Injuries which affect at the same time the ribs and abdomen are usually less severe.

Revue de Chirurgie, Paris

62: 1-79, 1924

Hydatid Cysts in the Pelvis. F. Dévé.—p. 1.
*Tuberculous Glands in the Interspaces. P. Wertheimer.—p. 70.

Tuberculous Lymphangitis and Adenitis in the Interspaces.—Wertheimer remarks that a tuberculous abscess in the wall of the chest is always ascribed to some bone lesion, when in reality the bone lesions are generally secondary to some process in the lymphatics or glands in the region. In one of the three typical cases described, the symptoms from the lymphangitis had been overshadowed by the lung lesions. They were a casual discovery during the thoracoplasty operation. In the second case the lymphatics linked the lung lesion with the tuberculous rib lesion, and in the third case a mass of suppurated tuberculous glands in the wall of the chest seemed to be an isolated lesion.

Revue Franç. de Gynécologie et d' Obstét., Paris

18: 681-728 (Dec. 10) 1923

*Surgical Treatment of Retroversion. H. Violet.—p. 681.
Glycemia of Pregnancy. F. Deluca.—p. 697.

Surgical Treatment of Retroversion.—Violet looks for appendicitis or for infections of the tubes and ovaries if retroversion is accompanied with pains in girls. Before operating on a virgin, it should be ascertained whether correction of the condition with a pessary relieves the patient. If the ovaries are abnormally low in Douglas' pouch, pessaries cause pains. They are useless if the retroversion is postpuerperal or complicated with prolapse. The suggestibility of all these women is great, and hysteria is very common. This accounts for some of the operative cures.

Schweizerische medizinische Wochenschrift, Basel

54: 121-140 (Jan. 31) 1924

*The Blood at High Altitudes. W. Knoll.—p. 121.
Auricular Fibrillation. P. Engelen.—p. 132.
Toxicity of Mushrooms. O. Fiertz.—p. 133.
Eclampsia and Hydatidiform Mole. F. Frey.—p. 134.

The Blood at High Altitudes.—Knoll confirms the increased amount of erythrocytes in high altitudes even if all precautions (hot hand-bath) are taken. The increase in the viscosity of the whole blood from the erythrocytosis is partly counterbalanced by the lowered viscosity of the serum. This is due to the decrease of serum proteins. The increase in erythrocytes and hemoglobin is not parallel. Tuberculous patients with a bad prognosis fail to produce more erythrocytes and hemoglobin. The leukocytes remain high, while they decrease in lighter cases. The blood does not change in persons who come from other places with a high altitude.

Riforma Medica, Naples

40: 73-96 (Jan. 28) 1924

Neuropathology and Psychiatry. G. D'Abundo.—p. 73.
*Liver Function in Tuberculosis. A. de Martini.—p. 77.
*Pathogenesis of Megacolon. R. Romani.—p. 81.
Fracture of Neck of Femur. S. Marconi.—p. 84.
Determination of Urea in Urine. R. Mauro.—p. 85.

Liver Function in Tuberculosis.—de Martini examined the liver function in forty-one tuberculous patients. He explains the alterations which were present in some of them as a simple constitutional reaction to the infectious stimulus.

Pathogenesis of Megacolon.—Romani believes that elongation of the colon is the primary cause of megacolon.

Anales de la Sociedad Médica de Saltillo

1: 1-28 (Dec.) 1923

*Protein Therapy in Ocular Disease. J. Ulises de la Garza.—p. 1.
Rarity of Dysentery at Saltillo. P. Amarillas.—p. 8.
The Mosquitoes of Mexico. E. Ramón.—p. 13.

Parenteral Injections of Milk in Treatment of the Eyes.—De la Garza has been applying this form of protein therapy during the last three years and has found it a powerful aid in combating acute affections of the eyes and other organs. He never injected more than 2.4 c.c. in children and 3-6 c.c. in adults, and stopped if benefit was not evident after three or five injections. The results were particularly fine in syphilitic iritis and operative infectious iridocyclitis.

Archivos Brasileiros de Medicina, Rio de Janeiro

13: 1157-1248 (Dec.) 1923

*Ovaritis and False Ovaritis. Bento de Lemos.—p. 1157.
*Infectious Psychosis. A. Farani and Fajardo da Silveira.—p. 1187.
The Pathogenesis of Cardiac Asthma. H. Annes Dias.—p. 1190.

Disease of the Ovaries.—Bento de Lemos describes six cases of sclerocystic degeneration of the ovaries. Among the measures he advocates in true ovaritis are glycerin tampons left in the vagina for twenty-four hours, rectal injection of a sedative, and application of ice to the abdomen night and day. In the false dystrophic sclerocystic ovaritis the main point is removal of the cause; in case of a gouty tendency, the uterus generally is suffering as well as the ovaries.

Infectious Psychosis.—The man had been in bed for some days with supposed severe sciatica; the leg was drawn up on the pelvis, and the pain spread down the back of the thigh. He did not reply clearly to questions and the mental confusion seemed to be more pronounced at night, amounting to actual delirium. The "sciatica" was of about a month's standing, and the physician's examination explained it as a suppurating phlegmon in the right iliac-lumbar fossa with pyemia. Two colored plates show the wide extension of the phlegmon and the means by which it was cleared out. An injection of physiologic solution with epinephrin hastened the subsidence of the psychosis.

Brazil-Medico, Rio de Janeiro

1: 19-34 (Jan. 12) 1924

*Acute Retrobulbar Optic Neuritis. G. de Andrade.—p. 19.
Thoracoplasty in Pulmonary Tuberculosis. J. G. Sant 'Anna.—p. 23.
Anatomy of the Aortic Orifice. J. Barbosa.—p. 25.

Acute Retrobulbar Optic Neuritis.—De Andrade declares that although syphilis, disseminated sclerosis and sinusitis are responsible for most cases of acute retrobulbar optic neuritis, these do not explain all. In a young English navy officer, absolutely nothing could be found to explain the sudden complete loss of vision in the right eye. There was a dull pain deep in the orbit as he moved that eye, and the eyeball was tender. De Andrade applied diaphoretics (pilocarpin by the mouth, to avoid its depressing action), with cupping of the temporal and mastoid regions, sodium iodid and mercury. Improvement was evident the second day, with vision fully restored by the fifteenth day. He ascribes the optic neuritis in a second case to getting chilled, but in a third case, the wife of a physician, nothing could be found to explain the loss of vision in one eye. Under the same treatment, restoration was complete in thirty days.

Prensa Médica Argentina, Buenos Aires

10: 577-604 (Jan. 20) 1924

*Brain Tumors. M. R. Castex and A. F. Camauer.—p. 577.
Besredka's Serologic Test for Tuberculosis. P. M. Barlaro and L. Rabinowitsch-Kempner.—p. 592.
Bullet Extracted from Heart: Recovery. M. Sussini.—p. 594.
Filaria Index in Tucumán Province. R. Biglieri.—p. 598.

Tumors of the Right Temporal Lobe.—Castex and Camauer give a detailed study of the peculiarly difficult diagnosis of a brain tumor without symptoms indicating its site. Localization was impossible in a case described in a young woman who had borne one child and one anencephalous monster. The symptoms had been melancholia, headache in the right frontal and temporal regions, impairment of vision, dizziness and cerebellar ataxia, but no disturbances in taste, smell or hearing until toward the last.

Revista Médica del Rosario, Argentina

13: 371-450 (Dec.) 1923

Orthostatic Albuminuria. D. Staffieri.—p. 371.
*Purulent Pericarditis. C. Muniogurria and A. Zeno.—p. 384.
Inversion of the Uterus. R. Rinesi.—p. 393.
*Treatment of Hypertension and Obesity. E. S. Weiler.—p. 401.
*Periarterial Sympathectomy. J. Lahoz.—p. 431.
Instrument to Evacuate Maxillary Sinus by Way of the Nose. M. A. Torres.—p. 437.
Quantitative Determination of Colon Bacillus. E. M. Gache.—p. 439.

Purulent Pericarditis.—The boy, aged 4, had a little malaise for three or four days and then pains in the throat and difficulty in breathing. Although the throat had a normal aspect, diphtheria antitoxin was injected. The venous pulse was pronounced, and finally pericarditis became manifest. The pericardium was drained for a month, a polyvalent vaccine injected, and the child was soon convalescent. Muniagurria and Zeno resected the sixth costal cartilage for access to the heart, ligated the internal mammary artery—all under infiltration anesthesia, the patient semiseated, no lavage and no antiseptics.

Treatment of Hypertension and Obesity.—Weiler's analysis has convinced him that all in this group of obesity, angina pectoris, hypertension, etc., are linked together by a common factor, the lack of the insulin hormone. The consequence is defective utilization of fat and consequently abnormal deposits of fat. The anomaly has to be combated by dropping all carbohydrates and giving insulin. Glycosuria, according to his conception, is a defensive phenomenon (except in renal diabetes), the consequence of the insufficiency of insulin production. The sequence of events is a defensive adipogenesis with compensating hydremia, consecutive hypertension and defensive glycosuria. Strict avoidance of carbohydrates and artificial supply of insulin proved brilliantly successful in his twelve cases.

Periarterial Sympathectomy.—Lahoz reports the complete cure in sixteen days of an extensive varicose ulcer on the leg which had returned again and again after numerous and varied operative measures during several years. The periarterial sympathectomy proved simple, easy and promptly effectual, as also in several other old chronic cases. In a few other cases no effect was apparent.

Revista Médica del Uruguay, Montevideo

26: 537-584 (Dec.) 1923

*Abortive Treatment of Syphilis. J. May.—p. 537.
*Vaccine Therapy of Typhoid. O. I. Rodriguez.—p. 549.

Abortive Treatment of Syphilis.—May accepts that the spirochete invades the organism by way of the blood, and the organism bears it like any foreign body for a period of a few days. In abortive treatment his doses are smaller but the total is larger than the French specialists advocate. He usually gives a second and a third shorter series of injections during the year, with smaller doses or with mercury. Cases rebellious to arsenical treatment may yield to bismuth. The Wassermann reaction is a sign that the syphilis must be regarded, from the standpoint of treatment, as already in the secondary stage.

Vaccine Therapy of Typhoid.—When Rodríguez by exclusion suspects typhoid, an injection of 0.5 c.c. of vaccine confirms the diagnosis as early as the fifth day by the abrupt rise and fall of the temperature or appearance of petechiae or of enlargement of the spleen. He says that antityphoid vaccine is harmless and imitates Nature in its action. If the disease is not typhoid, it is not modified by the vaccine. In case of a reaction, he continues the vaccine treatment by the vein. He gives the details of forty-one cases to sustain his statements that vaccine therapy is the best means at our disposal to date. The disease terminated by crisis in the majority, and the course was ten to twenty days. He gave one or two injections, rarely three.

Sciencia Medica, Rio de Janeiro

1: 259-312 (Dec. 31) 1923

*Paravertebral Thoracoplasty. R. Josetti.—p. 259.
The Syndrome from the Lower Esophagus. A. Bastos Tavares.—p. 271.
The Leprosy Question. Ribeiro de Almeida.—p. 275.
*Free Treatment of Syphilis. A. Fraga.—p. 278.

Paravertebral Thoracoplasty.—Josetti gives an illustrated description of the case of progressive unilateral ulcerating, fibrous tuberculosis in which he resected the ribs close to the spine in the man aged 35. It is the first case in which the Sauerbruch technic has been applied in Brazil, and it proved brilliantly successful. The disfigurement from the asymmetry of the chest is minimal and the expectoration dropped in two weeks from 50 c.c. to 10 c.c. He regards this paravertebral thoracoplasty as the greatest triumph of contemporaneous surgery. When studying it in Sauerbruch's service, he was horrified at the idea of attempting such a serious operation on patients who seemed at Death's door, but the results were actual resurrections. Five months of mountain climate are advisable afterward to consolidate the cure.

Free Treatment of Syphilis.—Fraga agrees with those who believe that the state should provide facilities for gratuitous treatment of venereal disease as the only way to protect the community. The campaign of enlightenment will have the effect of bringing the well-to-do to private physicians more than ever.

Semana Médica, Buenos Aires

1: 101-142 (Jan. 17) 1924

Open-Air Schools for Weakly Children. T. A. Tonina.—p. 101.
*Rebellious Aphthae on Buccal Mucosa. J. Cervera.—p. 130.
Pemphigoid Eruption After Smallpox. J. C. Palma and S. Miyara.—p. 133.

Rebellious Aphthae on Buccal Mucosa.—Cervera's patient had been having painful ulcerating lesions in the mouth, recurring after an interval of three and a half years and lasting about two weeks the first time and five months at the last appearance. The Wassermann reaction was negative, but under neo-arsphenamin treatment great improvement was realized. On suspension of the drug the lesions flared up anew.

1: 143-186 (Jan. 24) 1924

*Intracranial Hypertension. J. Arce and M. Balado.—p. 143.
Technic of Artificial Feeding of Infants. J. P. Garrahan.—p. 147.
*Serpiginous Chancroid. P. L. Baliña and M. Quiroga.—p. 153.
The Fluid of the Follicles. A. Quinterno.—p. 157.

Evolution and Prognosis of Intracranial Hypertension.—Arce and Balado give charts of four patients with high intracranial pressure which demonstrate anew the parallelism between the disturbances in circulation and the nervous system and the degree of the pressure. Low arterial pressure, irregular and rapid pulse, with dilatation of pupils, and lack of the light reflex, testify to conditions so serious that no extensive operation should be undertaken unless the circulation improves materially under heart tonics. This was observed in one of the cases described; in another the circulation improved at once after the intracranial pressure had been relieved.

Tuberculin Treatment of Serpiginous Chancroid.—Baliña and Quiroga urge study of the tuberculosis antecedents of patients with soft chancre, as the evidence to date seems to indicate that the rebellious, serpiginous, mutilating forms of chancroid are observed only in persons free from tuberculosis. The Ducrey bacillus seems to flourish exceptionally

in human organisms exempt from appreciable tuberculosis, and tuberculin treatment seems to modify the soil so that measures previously futile then become effectual. Notwithstanding the large doses of tuberculin given in the four cases of mutilating chancroid described, there was no local or general reaction except the rousing of the defenses, with the prompt healing of the long rebellious local lesion. They noted further that patients with mild and rapidly healing chancroid all presented a positive tuberculin reaction. They gave the tuberculin subcutaneously, about twenty-one injections in the course of two months, a total of about 100 mg. of tuberculin, beginning with minute doses and increasing to 10 to 20 mg.

Siglo Médico, Madrid

73: 53-80 (Jan. 19) 1924

*Treatment of Malta Fever. F. R. de Partearroyo.—p. 53. Conc'n, p. 85.
Shock. E. de Isla.—p. 57. Cont'd.
Necessity for Measuring the Arterial Pressure. G. R. Gonzalo.—p. 61.
No Prophylactic Sterilization of Women. I. Fedriani.—p. 62.

73: 81-102 (Jan. 26) 1924

New Features of Psychanalysis. J. M. de Villaverde.—p. 81.
Classification of Arrhythmias. G. R. Gonzalo.—p. 84.

Treatment of Malta Fever.—Partearroyo remarks that laboratory differentiation is indispensable, and that neoarsphenamin succeeds after failure of antiserums and vaccines, and may abort the infection.

Deutsche medizinische Wochenschrift, Berlin

50: 131-162 (Feb. 1) 1924

*Cell Stimulation and Permeability. Ebbecke.—p. 131.
Chemotherapeutic Antisepsis. R. Schnitzer and Rosenberg.—p. 133.
Antimony Treatment of Tropical Diseases. H. Ziemann.—p. 136.
*Malaria Treatment of Progressive Paralysis. Plehn.—p. 136.
*Hemorrhages After Insulin Treatment. Ehrmann and Jacoby.—p. 138.
Flocculation Reaction in Syphilis. A. Dalla Volta and P. Benedetti.—p. 139.
*Pathophysiology of the Tonsils. M. Goerke.—p. 141.
Sedimentation Test in Tuberculosis. Freund and Henschke.—p. 142.
Volvulus of the Stomach. K. Philippsberg.—p. 144.
Stenosis of the Pylorus from Foreign Bodies. K. Fritzler.—p. 145.
*Phimosis and Pseudophimosis in Infants. E. Glass.—p. 146.
Gastro-Intestinal Diseases. H. Citron.—p. 147.
Camphor Treatment of Pneumonia. F. Kaufmann.—p. 148.
*Pressure of Full Bath in Mitral Stenosis. R. Lurz.—p. 148.
Regulations on Physicians in Austria. S. Alexander.—p. 149.
R. Koch's Diary.—p. 152. Cont'n.

Cell Stimulation and Permeability.—Ebbecke finds an increased permeability of the membrane of irritated cells. The products of their metabolism pass then into the circulation and irritate the capillaries and blood cells. The degree of these changes decides the question of the local inflammation or general reaction.

Malaria Treatment of Progressive Paralysis.—Plehn observed an amelioration of the mental condition in at least one third of severe cases of progressive paralysis under malaria treatment. An improvement of the somatic changes (pupils) is rare. Therefore the method is not very promising in nervous syphilis or tabes.

Hemorrhages After Insulin Treatment.—Ehrmann and Jacoby treated two patients with diabetic coma with insulin from different sources. Both patients died; they had hemorrhages in the lungs, and one of them a large subdural hematoma. They attribute it to the injury of the vessels by the specific action of the acetone bodies.

Pathophysiology of the Tonsils.—Goerke believes that the tonsils gain their real pathologic significance in the time of their involution (from the sixth year).

Phimosis and Pseudophimosis in Infants.—Glass operates real phimosis in the first year. The condition is usually only simulated by adhesions of the prepuce. These adhesions can be easily destroyed with an olive-tipped bougie.

Pressure of Full Bath in Mitral Stenosis.—Lurz confirms on patients the action attributed by R. Tigerstedt to baths. This author found in rabbits that immersion in water acts by its pressure on the veins. This is the reason why some patients become dyspneic. The bath requires a surplus of work from the heart and the patients should be treated carefully.

Klinische Wochenschrift, Berlin

3: 209-256 (Feb. 5) 1924

*Carbon Dioxid in Alveolar Air. O. Porges.—p. 209.
*Carbohydrate Metabolism and the Pancreas. E. Toenniessen.—p. 212.
*Nutritional Disturbances of Infants. P. Reyher.—p. 213.
*Gravity Abscess in the Chest. Sick.—p. 218.
*Cancer Formation. R. Bierich.—p. 221.
*Swine Erysipelas in Human Finger Joints. H. Rahm.—p. 224.
*Benzene Poisoning. Teleky and E. Weiner.—p. 226.
Irradiation in Asthma. F. Klewitz.—p. 228.
"Spirochetes in Umbilical Cord." E. Hoffmann.—p. 229.
"Auricularis Sign in Meningitis." B. Mendel.—p. 230.
Treatment of Pyopneumothorax. R. Stahl and K. Bahn.—p. 230.
*Diagnosis of Type of Nephritis. E. Bloch and O. Einstein.—p. 230.
Action of Insulin. A. Audova and R. Wagner.—p. 231.
Dissociation of Blood Calcium. O. Budde and E. Freudenberg.—p. 232.
Aneurysm of Pulmonary Artery. H. Kranz.—p. 232.
Treatment of Aphasia. W. Eliasberg.—p. 234.
The Mortality from Tuberculosis. H. Dornedden.—p. 239.

Carbon Dioxid in Alveolar Air.—Porges reviews the clinical significance of changes of carbon dioxid tension in the alveolar air. He prefers Plesch's method ("closed air") to the Haldane-Priestley open technic. Aside from the well known conditions, the determination is valuable as indicator of secretion of hydrochloric acid. The carbon dioxid tension increases after meals, except in achylia. Another important condition is the "respiratory tetany" of neurotics. The increased respiration, which is responsible for the alkalosis and attack of tetany, lowers the tension. Other forms of tetany have a normal tension except the type due to repeated vomiting of acid stomach contents (usually in benign stenosis of the pylorus). This form has an increased carbon dioxid tension. The method is also helpful in abnormal congenital interventricular communication or patent Botalli's duct.

Carbohydrate Metabolism and the Pancreas.—Toenniessen observed an increase in the formation of acetaldehyd on adding Meyerhof's boiled muscle extract to the pancreas. Lactic acid is the probable source of the aldehyd. The reaction was further enhanced by addition of parathyroid substance. Mashed fresh muscles had an inhibiting influence. He believes that insulin acts on lactic acid and not on glucose.

Nutritional Disturbances of Infants.—Reyher fed infants with milk from cows which were on green fodder alternately with milk from cows with dry fodder. The increase in weight of the infants stopped with surprising constancy in the second case. He believes that all nutritional disturbances are due only to the food. The supposedly constitutional cases are simply prenatal wrong nutrition. If the food is generally sufficient, the nutritional disturbances are due to lack of vitamins. He observed three types; the spasmogenous nutritional disturbances (lack of vitamin B); the scorbutic disturbance (vitamin C), and their combination. The scorbutic nutritional disturbance is much more frequent than infantile scurvy. Acute dyspepsias and even toxicoses, chronic infectious conditions (influenza, furuncles, pyemia) may be due to lack of vitamin B or C. To date, he has never observed chronic general nutritional disturbances from lack of vitamin A. The results of treatment based on these findings are excellent. Extremely severe acute diarrheas were successfully treated with lemon juice (previously tested for activity). Since he has been investigating in every case the possibility of lack of vitamins, diarrheas have become rare in his institution, and the mortality has decreased progressively.

Gravity Abscess of Chest Cavity.—Sick remarks that the frequency of tuberculosis of vertebrae in adults is underestimated. Half of the cases are not recognized during life. He punctures the eventual intrathoracic gravity abscess at its broadest part as determined by the roentgen rays. The preferable point is 2.5 cm. to the right (because of the aorta) of the spinal process of a vertebra. He withdraws the pus and injects 10 c.c. of a suspension of iodoform in oil.

Cancer Formation.—Bierich assumes from his experiments that the destructive action of cancer on the connective tissue is due to lactic acid.

Swine Erysipelas in Human Finger Joints.—Thirty-six cases of erysipeloid affecting sometimes the finger joints confirmed Rahm in his opinion as to the identity of the disease with hog erysipelas. Specific serum had an immediate effect in fifteen of these cases.

Benzene Poisoning.—Teleky and Weiner found that lymphocytosis (over 40 per cent.) was the most typical sign of chronic benzene poisoning. Erythrocytes, hemoglobin and the platelets were subnormal.

Diagnosis of Type of Nephritis.—Bloch and Einstein differentiate in the urine the serum lipase from the kidney lipase. A normal urine contains only a small quantity of the latter, and none of the first. They found serum lipase in the urine in almost every affection of the kidneys, and they consider it as an expression of increased permeability of the kidneys. Kidney lipase indicates a disturbance of the epithelium, and was maximal in nephroses. In these cases they found a substance reacting like globulins, besides an albumin. The optimum of flocculation was different in both proteins from that of the albumin and globulin in the serum.

Medizinische Klinik, Berlin

20: 135-168 (Feb. 3) 1924

Chronic Affections of Joints. F. Munk.—p. 135. Conc'n, p. 204.
Tuberculin in Diagnosis. M. Weiss.—p. 139.
Multiple Bone Tumors. H. Assmann.—p. 141. Conc'n.
*Colitis with Edema in Infants. F. Müller and S. Paul.—p. 144.
Intertrigo in Infants. H. Simchen.—p. 146.
*Cause of Arsphenamin Injuries. Levy-Lenz.—p. 148.
Technic for Gastroscopy. Thinius.—p. 149.
"Individual Prevention of Syphilis." Manteufel.—p. 149. Reply, Worms.—p. 150.
Survey on Gynecology. Liepmann and Wels.—p. 152.

Colitis with Edema in Infants.—Müller and Paul observed within a short time sixteen cases of a peculiar syndrome in infants between 6 weeks and 1 year old. A few weeks of partly mucous diarrhea and loss of appetite were followed by profuse vomiting and restlessness. Later the children became apathetic, and cried when disturbed. The temperature was around 38 C. and the stools contained mucus and pus. Edema developed at this time, in spite of sufficient diuresis, and loss in weight. The chlorids in the diet had no influence. The edema contained much salt and over 1 per cent. of albumin. All the infants but two died.

Cause of Arsphenamin Injuries.—Levy-Lenz points out that not all arsphenamin injuries are due to the drug. Lenhoff and Lesser observed two such fatal cases, and in reality the patients had died from typical influenza pneumonia. Very frequently the untoward effects occur in "epidemics," which stop when another series of the drug is used.

Münchener medizinische Wochenschrift, Munich

71: 123-152 (Feb. 1) 1924

Dosage of Roentgen Rays. O. Jüngling.—p. 123.
Pathology of the Diaphragm. G. Burkhardt.—p. 125.
Precancer Affections. C. Haebler.—p. 127.
Fracture of the Ankle. A. Keck.—p. 128.
Germicidal Action of Antiseptics. Dobbertin.—p. 129.
*Serodiagnosis of Tuberculosis. F. Mündel.—p. 132.
Spasm of Unstriped Muscles. Kuhig.—p. 134.
*Death After Haarlem Oil. K. Walcher.—p. 135.
Spontaneous Cure of Rectal Fibrolipoma. K. Vogeler.—p. 136.
Roentgenology of Cysticercus. G. Krutzsch.—p. 137.
*Treatment of Sterility. H. A. Dietrich.—p. 137.
*Diseases of Lymphatic Glands. A. Krecke.—p. 139.

Serodiagnosis of Tuberculosis.—Mündel found that the serum from tuberculous and syphilitic children flocculates within five minutes after addition of 5 drops of a 19 per cent. solution of ammonium sulphate to 0.1 c.c. of the serum.

Death After Haarlem Oil.—Walcher publishes a case of sudden death from edema of the glottis after ingestion of so-called Haarlem oil. The patient used it against toothache. The oil is a mixture containing chiefly sulphur, oil of turpentine and juniper.

Treatment of Sterility.—Dietrich had only bad experiences with the treatment of sterility by means of the "Fruktulet" tube. Endometritis and salpingitis occur after this supposedly harmless procedure.

Diseases of Lymphatic Glands.—Krecke deals with the diagnosis of enlarged lymphatic glands. Tuberculous glands are at the beginning usually very hard. A large extent does not exclude tuberculosis. It is self-evident that one has to think of syphilis if the inguinal glands are enlarged. The primary chancre may be healed by the time of the examination. Nevertheless the same etiology is possible in any other region (mouth). He cites the case of a surgeon with lymphadenitis of the elbow. It was secondary to an overlooked primary sore on a finger. Another man was operated on for sarcoma of the inguinal glands. No one examined the rectum, where the primary tumor was located. Not only the external genital organs, but the whole lower extremities and especially the rectum must be carefully examined in such cases. In disease of glands in the neck, the mouth, nose, pharynx and also the larynx and esophagus may be the primary seat. The Wassermann test should always be applied.

Wiener klinische Wochenschrift, Vienna

37: 105-130 (Jan. 31) 1924

*Abscess After Peritonitis Operations. K. Nather.—p. 105.
Permanent Cure of Cancer. A. Fraenkel.—p. 109.
*Etiology of Stammering. M. Sachs.—p. 113.
Congenital Skin Defect on Head. H. Heidler.—p. 114.
*Action of Iodin in Goiters. N. Jagic and G. Spengler.—p. 116.
Infant Mortality Since the War. S. Peller.—p. 118. Conc'n.
Medical Impressions of South America. R. Kraus.—p. 119. Cont'd.

Abscess After Peritonitis Operations.—Nather reports the experiences of Clairmont's clinic in the last 700 operative cases of acute appendicitis. The total mortality with "closed treatment" was 1.9 per cent. The cases terminating fatally were exclusively the severest forms of peritonitis, with the operation between the fourth and eighth day, and death occurred within eight days after the operation. The most common complication was an abscess in the abdominal wall. Removal of a clamp or suture together with hot aluminum subacetate dressings prevents its spreading. Abscesses of the pouch of Douglas are next in frequency. The usual position of the patient (head of the bed raised) favors this localization. The rectum should be daily examined for beginning infiltration, which subsides sometimes after hot applications. If it does not disappear within a week, an abscess is probable. It gradually descends, and mucous diarrheas, dysuria and pollakiuria appear. The sphincter is usually paralyzed. The temperature is variable, but the blood count shows the typical leukocytosis. The abscess should be opened by way of the rectum, not through the vagina. Subphrenic abscesses are next in order. Persistent leukocytosis is the first sign; the skin over the twelfth rib is sometimes slightly edematous. Then the lower border of the lung becomes immovable, and a slight dullness develops. There may be absence of pain. Auerbach has warned to examine the abdomen always in pleuritis. Puncture is here superfluous, the retroperitoneal operation best. Abscesses in the left side have a tendency to perforate through the abdominal wall. This warrants expectant treatment in the beginning.

Etiology of Stammering.—Sachs points out that the movements in phonation are strictly bilateral while the center for speech is unilateral. He believes that the cortex of both sides takes part in the innervation, and that the interference (instead of the cooperation) of these impulses is the cause of stammering. Fröschels found many left-handed persons among stammerers, and also observed stammering in persons who had lost their right arm and were training the left.

Action of Iodin in Goiters.—Jagic and Spengler used Neisser's method (3 or more drops of a 5 per cent. solution of sodium iodid three times a day) in treatment of goiter. Out of 16 patients with thyrotoxic symptoms, 8 were ameliorated, 2 became worse. They used larger doses in 36 cases of simple goiter; 12 patients improved. The treatment had to be discontinued in 7 because of toxic symptoms. The tolerance is entirely individual and cannot be ascertained in advance. Tachycardia and rapid pulse are very important symptoms. The heart figure may change in the mitral type. The treatment is far from safe or harmless if not kept under close control.

Zentralblatt für Chirurgie, Leipzig

51: 61-124 (Jan. 19) 1924

Catgut Suture Reenforced by Thread. F. von Hofmeister.—p. 61.
Artificial Cardia in Esophagoplasty. G. Lotheissen.—p. 64.
Operative Removal of Ulcers at Entrance of Stomach. H. Haberer.—p. 67.
Choice of Operative Method in Perforated Ulcer. G. Hotz.—p. 72.
Therapy of Chronic Gastric or Duodenal Ulcer. M. Madlener.—p. 76.
Experiences with Appendicothlipsia. O. Lanz.—p. 81.
When Should Gallstone Patients Be Operated On? Kirschner.—p. 83.
Changes in the Field of Gallstone Surgery. W. Körte.—p. 86.

Lateral Ureterocysto-Anastomosis. A. Krogius.—p. 92.
Case of Diaphragmatic Hernia. E. Key.—p. 95.
Rectum Extirpation with Preservation of Sphincter. Kümmell.—p. 98.
Laceration of Bladder in Pelvic Injury. A. Fromme.—p. 101.
Artificial Sterilization of the Feebleminded. H. Braun.—p. 104.
Musculoplasty for Paralysis of Trapezius. G. Perthes.—p. 106.
Gangrene of Forearm After Injection of Arsphenamin. Schloffer.—p. 110.
Separation of the Epiphysis on Neck of Femur. M. Kappis.—p. 113.
*Ununited Fractures of Neck of Femur. O. Hildebrand.—p. 119.
Treatment of Fractures. K. Mermingas (Athens).—p. 120.
Treatment of Patients with Reduced Coagulability of Blood Before Orthopedic Operations. K. Schulte.—p. 123.

Operative Treatment of Ununited Fractures of Neck of Femur.—Hildebrand refers to the fact that in a large proportion of fractures of the neck of the femur no bony union of the fragments occurs. The conditions are unfavorable since the head of the femur receives from the cylindric ligament only a few small blood vessels and the vessels that supply nutrition to the side of the head are usually lacerated by the fracture. Nail extension or suturing the neck of the femur usually fails owing to the inadequate formation of the new bone. He describes an operation by which he keeps the stump of the femur in the acetabulum. The head of the femur is removed and the groove between the medial surface of the greater trochanter and the upper surface of the neck of the femur is made deeper by the removal of a wedge-shaped piece of bone, as shown in the illustration. The stump of the neck of the femur is thus lengthened so that it can enter the acetabulum further, and, at the same time, the space between the neck of the femur and the greater trochanter becomes deeper and broader, and the posterior upper margin of the acetabulum fits in more securely, articulating, as it were, in the deepened groove. The removal of the bone wedge stimulates the growth of new bone and connective tissue, and brings about a union with the margin of the acetabulum. While healing, the leg is kept in a slightly abducted position by means of a plaster cast. The stump of the neck of the femur is rounded off, so as to fit into the acetabulum better. The fact that the femur no longer slips by the acetabulum when the weight of the body rests upon it, together with the firmness of the joint, more than compensate for the slight shortening.

Construction of new head for the femur.

Acta Medica Scandinavica, Stockholm

60: 1-94 (Jan. 24) 1924

Influenza Meningitis. M. Kristensen and S. Christensen.—p. 1.
*Capillary Pulse. E. Hisinger-Jägerskiöld.—p. 7.
*Colorless Blood Corpuscles. R. Fåhræus.—p. 12.
Myotonic Dystrophy. A. Barkman.—p. 22.
*Gastroptosis. G. Edholm.—p. 33.
Subphrenic Abscess. B. Akerblom.—p. 38.
Hemiathetosis in Hypertension. G. Edström.—p. 57.
*Vagotomy in Gastric Crises. E. Thomsen.—p. 66.
*Insulin Administration by Mouth. E. Salén.—p. 74.
Topical Diagnosis of Spinal Tumors. A. Barkman.—p. 88.

Capillary Pulse.—Hisinger-Jägerskiöld observed only once a microscopic capillary pulse in twelve patients with Quincke's macroscopic pulsation of the capillaries of the forehead.

Colorless Blood Corpuscles.—Fåhræus examined microscopically the formation of rouleaux of erythrocytes. He found that one corpuscle in such a rouleau swells and loses its hemoglobin until it has the same refraction as the surrounding plasma. Such corpuscles had been seen and described by Norris in 1882 and explained as nuclei of the lymphocytes changing into erythrocytes. He also later believed that he had thus described blood platelets.

Gastroptosis.—Edholm examines the sagging stomach by roentgenoscopy as he pushes it up with both hands. The pain disappears in this position of the stomach, if it was due to gastroptosis.

Vagotomy in Gastric Crises.—Thomsen's patient with ophthalmoplegia and atypical gastric crises was relieved by atropin. The crises stopped after resection of the gastric branches of the pneumogastric nerve.

Insulin Administration by Mouth.—Salén administered insulin in an olive oil emulsion by mouth. It had a distinct, though individually different action in two young diabetics. It was ineffective in an older patient.

Hygiea, Stockholm

86: 33-80 (Jan. 31) 1924

*The Prognosis of Exophthalmic Goiter. A. Troell.—p. 33.
Civilization and Neuroses. I. I. Bratt.—p. 52. Conc'n.

The Prognosis of Operations for Exophthalmic Goiter.—Troell has recorded the relative blood count, the suspension stability, the tolerance for glucose, the blood pressure, and the basal metabolism findings in sixty cases of exophthalmic goiter, including forty-one in which operative treatment was applied. Classifying and charting this material and comparing the findings have demonstrated that the basal metabolic rate is a reliable index of the hyperthyroidism. As a rule, when it is above 50 per cent. the operation is safe only when done in two or more stages. With a rate above 80 or 90 per cent., any operation is liable to prove fatal. The maximal systolic pressure is usually exceptionally high, and the differential blood count also shows the disturbance. By heeding these findings it is possible to estimate almost with precision the outcome of operations in exophthalmic goiter.

Ugeskrift for Læger, Copenhagen

86: 113-134 (Feb. 7) 1924

*Atropin in Stenosis of the Pylorus. A. Johannessen.—p. 113.
Life Expectancy at Copenhagen, 1870-1920. P. Heiberg.—p. 120.
*Vasomotor Rhinitis Due to Straw. G. Fløystrup and J. Kragh.—p. 122.
Poisoning from Lead Oxid Used as Abortifacient. E. Holm.—p. 123.

Atropin in Treatment of Congenital Stenosis of the Pylorus.—Johannessen gives charts from seven cases of congenital pyloric stenosis in which the permeability of the pylorus was restored by large doses of atropin. He gave 2 drops of the 1 per thousand solution of atropin sulphate four or five times a day, usually preceded at first by rinsing out the stomach. The best effect was realized in the five severer cases. In four, suspension of the atropin was followed by return of the vomiting, banished anew by brief resumption. The atropin is given half an hour before feeding, aiming to open the pylorus by this means when the food reaches it. The action of the drug is manifest in a few days, but its full effect does not appear until the tenth to the fourteenth day. His experience indicates that the drug must be continued for nine or ten weeks, and that infants are peculiarly tolerant of atropin. The largest daily dose he ventured was 0.7 mg.; the usual dose was 10 drops, fractioned. In three cases the tolerance seemed to be perfect; in three others there were slight and briefly transient redness in the face and dilatation of the pupils. In one case the symptoms of toxic action were so grave that the drug was suspended but was resumed in smaller doses as the lesser evil at last, and it undoubtedly saved the infant's life. This child had retention of 130 gm., slight fever and great loss of weight, with occasionally blood in the vomit.

He has applied atropin in about the same doses in forty other cases, mostly in whooping cough and the exudative diathesis. There were never any signs of intolerance in the older children, and, in the younger ones, nothing more serious than occasional briefly transient redness of the face and dilatation of the pupils. His impression is that the tolerance is least in much debilitated children. He always begins with very small doses. Only when certain that there is no idiosyncrasy to one drop of the 1:1,000 solution, he begins to increase the dosage. He warns in conclusion not to forget that greater caution is needed in dispensary practice as there is no control.

Vasomotor Rhinitis Due to Straw.—The previously healthy young man had been having symptoms resembling hay fever with urticaria on the exposed regions during the two years he had been working in a hardware store. The symptoms were most pronounced after unpacking articles packed in straw, and he developed a pronounced local and general reaction when an extract of straw was applied to his skin. Since he has refrained from handling straw, he has had no return of the rhinitis.